THE

FARMER'S MAGAZINE:

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(No. XIV.)

BRANCH I.

ORIGINAL COMMUNICATIONS.

LETTER *from* GEORGE DEMPSTER *Esq. of Dunnichen, to the* CONDUCTOR, *February 19th.*

SIR,

THOUGH extremely gratified by your obliging favour of the 27th ult., I delayed acknowledging its receipt until I ſhould alſo have received No. XIII. which reached me only yeſterday, and was worried on the ſpot, ſtump and rump, and proved a very agreeable morſel. I promiſe myſelf and my neighbours many a ſavoury bit from your kitchen; and ſincerely hope that a ſound way of thinking upon ſome of the moſt important topics may be introduced, for the benefit of our empire, and the happineſs of its inhabitants. How much depends upon mankind thinking ſoundly and wiſely on agricultural topics, which, in point of extent, ſurpaſs all others, and which may be ſaid to embrace the whole ſurface of the globe we inhabit! I would ſtill be more laviſh in my commendation of your deſign, were it not that I ſhould thereby indirectly make a panegyric on myſelf. For theſe laſt forty years of my life, I have acted in the management of my little rural concerns on the principles you ſo ſtrenuouſly inculcate. I found my few tenants, without leaſes, ſubject to the blackſmith of the barony; thirled to its mills; wedded to the

wretched ſyſtem of outfield and in; bound to pay kain, and perform perſonal ſervices; clothed in hodden, and lodged in hovels. You have enriched the Magazine with reſults of your farming excurſions. Pray direct one of them to the county I write from; peep in upon Dunnichen: and if you find one of the evils I have enumerated exiſting; if you can trace a queſtion, at my inſtance, in a court of law, with any tenant as to how he labours his farm; or find one of them not ſecured by a leaſe of nineteen years at leaſt and his life, the barony ſhall be yours. You will find me engaged in a controverſy of the moſt amicable kind with Lord Carrington, defending the freedom of Engliſh tenants from the fooliſh reſtrictions with which their induſtry is ſhackled, prohibitions to break up meadow land, to ſow flax, to plant tobacco, &c. &c. &c., all impoſed by fooliſh fears, or by ignorance, and confirmed by the ſelfiſh views of land ſtewards who naturally wiſh the dependence of farmers on their will and pleaſure. God knows, Scotland is phyſically barren enough, ſituated in a high latitude, compoſed of ridges of high mountains; yet, in my opinion, moral cauſes contribute ſtill more to its ſterility. I urge the zealous proſecution of your labours, as a general change of ſyſtem and ſentiment is only to be effected ſlowly: your maxims are deſtined firſt to revolt mankind, and, long after, to reform them. There never was a leſs ſucceſsful apoſtle than I have been. In a miſſion of forty years, I cannot boaſt of one convert. I ſtill find the tenants of my neareſt neighbours and my beſt friends, cutting down the laird's corn, while their own crops are imperiouſly calling for their ſickles. I am much pleaſed with the rotations you ſuggeſt; and as thoſe topics are very favourite ones with me, they occupy no ſmall portion of my leiſure moments.

The Highland Society being ſilent on the ſubject of the emigration of the Highlanders who are gone, going, and preparing to go in whole clans, can only be accounted for by thoſe who are more intimately acquainted with the ſtate of the Highlands than I pretend to be. One would think the ſociety were diſciples of Pinkerton, who ſays, the beſt thing we could do would be to get rid entirely of the whole Celtic tribe, and people their country with inhabitants from the low country. How little does he know the valour, the frugality, the induſtry of thoſe ineſtimable people! or of their attachment to their friends and country! I would not give a little Highland child for ten of the higheſt Highland mountains in all Lochaber. With proper encouragement to its preſent inhabitants, the next century might ſee the Highlands of Scotland cultivated to its ſummits, like Wales or Switzerland, its vallies teeming with ſoldiers for our land army, its bays, lakes and friths with ſeamen for our navy.

But

But this is a long chapter. A Roman orator ſays, Arms muſt give way to the gown—A modern orator might ſay, with more truth, Arms muſt give way to the wool the gown is made of.

At the height of four hundred feet above the level of the ſea, and ten miles removed from it, I dare not venture on ſpring wheat, but I have had one advantage from my elevation, my autumn wheat has been covered with ſnow moſt of the winter, through which its green ſhoots peep very prettily. I have ſometimes believed that this hardy grain is better calculated for our cold climate than is generally thought, if ſown on well cleaned and dunged land, very early, perhaps by the end of September, ſo as to be in ear when we get our ſhort ſcorch of heat from 15. July to 15. Auguſt, and to profit by it. I was pleaſed with your recommending married farm-ſervants. I don't value mine a ruſh till they marry the laſs they like. On my farm of 120 acres, I can ſhew ſuch a crop of thriving human ſtock as delights me. From five to ſeven years of age, they gather my potatoes at 1d. 2d. and 3d. per day, and the ſight of ſuch a joyous buſy field of induſtrious happy creatures revives my old age. Our dairy fattens them like pigs; our cupboard is their apothecary's ſhop; and the old caſten clothes of the family, by the induſtry of their mothers, look like birthday ſuits on them. Some of them attend the groom to water his horſes; ſome the carpenter's ſhop, and all go to the pariſh ſchool in the winter time whenever they can crawl the length.

Could your Magazine ſuggeſt a better uſe to make of our Highlanders than ſhipping them off for America; it would be a public ſervice, and not foreign to the deſign of it.

I am your, &c.

NOTE.

The Conductor feels himſelf highly honoured by the above enlightened and liberal communication, and returns his moſt ſincere and ardent thanks to the worthy and benevolent author. In a long courſe of public ſervice Mr Dempſter diſtinguiſhed himſelf in an eminent manner, by arduouſly ſupporting every meaſure which had the improvement of the country or the welfare of mankind for its object, and in repeated inſtances contributed to the benefit of trade, manufactures and agriculture. Thoſe, who are in the leaſt acquainted with the hiſtory of the laſt forty years, need hardly be reminded of his philanthropical and unwearied exertions. In fact, his name is to be found in almoſt every Parliamentary report of any conſequence; and though connected by principle with the Rockingham or old Whig party, he never for a moment allowed political principles

to influence his judgement, when ſubjects connected with the improvement of the country were under diſcuſſion, but ſupported them according to their utility, no matter by whom they were brought forward.

Now, when he has retired to private life, he continues to poſſeſs the ſame animated deſire of doing good to the community, as when he filled a public ſtation. Long may the country have cauſe to boaſt that it poſſeſſes ſuch a citizen; and may he, in his advanced years, enjoy every comfort which makes life pleaſant and agreeable. Senſible that the countenance and approbation of ſuch a man will prove of the utmoſt advantage to the cauſe in which we are engaged, it will be our ſtudy to retain his favour, and to profit by every hint coming from ſuch a reſpectable quarter. N.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On Thraſhing Machines.

SIR,

THE thraſhing machine is confeſſedly one of the greateſt improvements that have been introduced in our day. It not only leſſens human labour, and that of a kind which is intolerably ſevere, but gives a greater return to the farmer than was formerly gained by the operation of flails. On theſe accounts, I am glad to ſee the ſubject taken up in your Magazine, and truſt that a deſcription of its merits cannot fail to prove beneficial to the public in ſeveral reſpects.

Your correſpondent A. G. (Vol. 3. p. 428.), ſeems, however, rather imperfectly acquainted with the hiſtory of this uſeful implement; and, if I am not miſtaken, is alſo deficient in the knowledge of its powers, and the principles on which it is conſtructed. Give me leave, therefore, to make a few remarks on his letter, and to explain, in a brief way, the various attempts that have been made by different perſons, at different periods, to conſtruct thraſhing machines. My opportunities of acquiring information concerning theſe matters have been numerous; but whether I have improved them aright, will beſt appear from the ſequel. I ſhall, in the firſt place, elucidate the hiſtory of the machine; then inveſtigate what is ſaid by A. G. reſpecting his various attempts to improve it; laſtly, demonſtrate that thraſhing machines of a ſmall ſize are a real and poſitive loſs to every farmer who uſes them, and that the flail is preferable to theſe weak and comparatively powerleſs implements.

Before

Before entering upon the firſt branch of the propoſed plan, I muſt remark, that your correſpondent almoſt totally neglects to mention the only machine capable of performing the arduous taſk of ſeparating corn from the ſtraw, while he dwells at great length upon the trifling and inſignificant attempts of thoſe, who, it would appear, had been trying to conſtruct implements for thraſhing at an earlier period. He even avoids noticing the endeavours of many people to conſtruct machines, which, though abortive, were in every point of view, more deſerving of attention than thoſe he has condeſcended upon. The inutility of ſuch as he has deſcribed, from the invention of Mr Evers to that of Mr Cotterel, being apparent to the moſt ſuperficial inquirer, I ſhall not offer to examine them, though a few words ſhall afterwards be uſed reſpecting the machine ſaid to be of Mr Cotterel's invention.

The earlieſt attempt in Britain to conſtruct a machine for thraſhing, was made by a Mr Menzies. The principle of it, as is well known, was to work a number of flails by a water-wheel; and this was afterwards imitated by Mr Meikle, as may be ſeen in a letter deſcribing the operations thereof, from ſix reſpectable farmers, ſubjoined to the ſecond volume of Wight's State of Scotiſh Huſbandry, publiſhed in 1778. A Mr Stirling of Perthſhire next deviſed a machine upon the principles of the flax mill, which was uſed by himſelf for ſeveral years, and even imitated by others. But thoſe which chiefly engaged the public notice, were two machines conſtructed in Northumberland, in 1772 and 1773; the firſt by a Mr Ilderton at Alnwick, and the other by a Mr Oxley at Flodden. Mr Ilderton's acted on the principle of preſſing or rubbing out the corn, which, it is ſaid, was in ſeveral inſtances imperfectly performed. Mr Oxley's attempt approached neareſt to ſucceſs; therefore, I ſhall be more particular in detailing the ſeveral parts thereof, eſpecially as it has been alleged by many people, that the machine now in general uſe was borrowed from it. This, however, is not true; for I am confident that Mr Meikle never ſaw nor heard any thing of it, till long after it was taken down. Indeed, a moment's conſideration will ſerve to convince any perſon acquainted with mechanics, that the two machines are altogether unconnected, both in principle and practice.

The machine erected by Mr Oxley for Sir John Delaval Bart. had two feeding rollers, and, inſtead of a drum, had a double ſet of arms connected at the ends by croſs bars. The ſkutchers were formed of pieces of wood about 3 inches broad, 1¼ inch thick at one edge, by ¾ inch at the other, and were connected with the croſs bars by leather ſtraps. A circular breaſt was fixed beneath the centre, about 3 inches diſtant from the ſkutchers, ſo as to allow the corn to paſs betwixt them. The unthraſhed corn was laid on a

board at the level of the centre of the ſkutchers, and drawn in by two fluted rollers. The operations of the machine were very defective; and as little corn could be paſſed at a time, the expence of thraſhing was greater than if executed by the common flail.

The principles, upon which the machine was conſtructed, were evidently erroneous. The form of the ſkutchers uſed, and the way in which they were fixed, were ſuch, that their reverberations would neceſſarily weaken the force of the ſtroke ſo much, as to require an exertion of greater power. To give an extra power, however, was impracticable; for if one half of the velocity of the machines now uſed had been given, the ſkutchers would inſtantly have broke to pieces, and occaſioned the total deſtruction of the implement, beſides endangering the lives of thoſe employed in working it.

From theſe things it may be deduced, that velocity formed no part of the principles of this machine, and that it could not have been ſucceſsfully uſed without material alterations. But this is not all. The relative ſituation of the feeding rollers and ſkutchers was ſuch, that the utility of the former was in a great meaſure defeated. Their purpoſe is to draw the corn gradually forward, and to hold it firm when the ſtroke of the ſkutcher is given; but the diſtance betwixt them prevented the latter object from being accompliſhed. Another defect, and a material one, was the want of a drum, which is abſolutely neceſſary to prevent the corn from flying about the houſe, and the ſtraw and chaff from clogging the machinery to which the ſkutchers are ſuſpended. The abandonment and deſtruction of this machine, however, proves its inefficacy better than the ſtrongeſt arguments, and the moſt ſatisfactory human teſtimony.

This machine was never made public; and I believe that Mr Oxley was very ſhy in ſhowing it to ſtrangers. The particulars, which I now give, were communicated by a mill-wright at Newcaſtle, who aſſiſted in taking it down; and, being corroborated by information from others, may, I think, be fully depended upon.

Having detailed ſeveral of the unſucceſsful attempts to conſtruct a machine capable of thraſhing, I come with pleaſure to narrate the circumſtances which led to the conſtruction of the machine now in general uſe. Every former attempt having failed, (and this does not require any proof, ſeeing that all the old machines are laid aſide), unqueſtionably the merit of the invention appertains to the gentleman whom I am ſhortly to mention.

The late worthy Sir Francis Kinloch Bart. of Gilmerton, who, as it is well known, poſſeſſed a large ſtock of mechanical knowledge, in one of his tours through Northumberland, happened to ſee the machine erected by Mr Ilderton, at his farm near Alnwick,

wick, and ordered a model thereof to be made for his uſe, upon which he afterwards formed a number of improvements. Several of the models, executed under Sir Francis's inſpection, are ſtill preſerved; and one of them, tolerably perfect, I examined in the ware-room or depôt of the Board of Agriculture at London. As Sir Francis had no opportunity of trying a large model which he cauſed to be made, it was ſent by him to Mr Andrew Meikle, civil engineer at Houſton-mill near Haddington, in order that its effects might be aſcertained by the water-wheel of Mr Meikle's barley mill; but in making this trial, the model was torn to pieces; and the like fate befel a machine of full ſize, erected at the expence of Sir Francis, ſeveral years afterwards, upon the principles of the model ſent to Mr Meikle. Whether Mr Meikle had previouſly ſketched out a plan of a perfect machine, or whether the ſight of Sir Francis's model ſtimulated his inventive genius, are problematical circumſtances; indeed, they are immaterial to the main point; for if it can be ſhown, that no machine had been erected prior to that of Mr Meikle's, capable of executing the work intended, or undergoing the neceſſary velocity, then I preſume the merit of the invention muſt be given to him, even were I to allow, which after all is a diſputable point, that his attention was excited by the attempts of others, which, at all hands, are now acknowledged to have been imperfect and incomplete.

Mr Meikle, after trying Sir Francis Kinloch's model, as already ſaid, was induced to apply a principle entirely new, and which had not hitherto been uſed by any other. It is evident that the force required to thraſh perfectly, or even in any quantity, muſt be conſiderable; for no machine is capable of doing the work in a perfect manner, that does not move with a velocity exceeding two thouſand feet of the circumference of the drum in a minute. This occurred to Mr Meikle; and he could diſcover no ſurer method of executing the work, than to beat out the corn from the ear by means of a ſtrong drum or cylinder, upon which *fixed beaters* ſhould be placed. Experience ſanctions the juſtice of the principle adopted by him; for every machine now in uſe has been copied from thoſe he firſt erected, though, no doubt, many variations upon the ſize of the drum, and other matters totally diſtinct and unconnected with the original principle, have ſince been adopted, both by himſelf and others. The machine is ſo generally known, that it would be a work of ſupererogation, were I to take up your time in deſcribing it. I may only add, that one of the chief advantages of the machine is, that it is capable of being ſafely wrought with greater velocity than I have mentioned; and, without velocity, corn cannot be thraſhed in a perfect manner.

The firſt machine erected by Mr Meikle was on account of Mr Stein of Kilbeggie; and, as a proof that ſuch machines were then altogether unknown, it was ſtipulated in the agreement, that Mr Stein ſhould furniſh the wood, and that, if the machine did not anſwer the intended purpoſe, no payment ſhould be given to Mr Meikle for the work performed. Another was ſhortly thereafter erected for Mr Selby at Middleton, Northumberland, which was immediately copied and imitated by ſeveral mill-wrights of that county; one of whom afterwards had the ſingular modeſty to claim the invention, and, what was of more importance, at leaſt to him, had the good luck of getting many people to credit the aſſertions which he offered.

After the utility of the machine was completely aſcertained, a patent was applied for and obtained by Mr Meikle, ſecuring the benefits of the invention to him and his heirs for the period of fourteen years. It is a ſingular circumſtance, that, after obtaining this patent at a conſiderable expence, it ſhould not have been immediately acted upon, which would have been an eaſy buſineſs at the outſet; though afterwards, when attempts were made to carry the patent into execution, the immenſe number of interlopers to be combated rendered the taſk too Herculean to be accompliſhed. Mr Meikle's ſilence, in fact, enabled every man that imitated the machine to claim the invention as his own, and occaſioned the public at large to believe that the patent was obtained under falſe pretences. It is not my buſineſs to unriddle the cauſes of Mr Meikle's inaction, but I believe they are pretty generally known; and though they do not exalt his character as a man of buſineſs, yet they are not diſcreditable to him in any other reſpect. Indolence and inattention are defects which have clung to the greateſt geniuſes, and ſerve to ſhow us that the bounties of nature are more equally diſtributed than is generally imagined.

At a future period, viz. when ten years of the patent were expired, ſome of Mr Meikle's friends ſtood forward, and endeavoured to eſtabliſh its validity; but, after ſeveral ſteps were taken to procure redreſs, it was found that the buſineſs was ſo complicated and confuſed, and the body of interlopers ſo numerous, that the full period of the patent might have been waſted away before matters could have been finally adjuſted. Guided, therefore, by prudential motives, and laying the queſtion of right entirely aſide, it was judged expedient to withdraw the actions which had been entered, and relinquiſh the benefits which the patent conferred. Thus, the worthy inventor, partly owing to indolence at the outſet, has been deprived of the reward he juſtly merited, though his caſe well deſerves the application of national munificence.

Having

Having now ſtated that the invention belongs to Mr Meikle, permit me to examine what is ſaid by your correſpondent reſpecting Mr Cotterel's machine, and the erection of thraſhing machines in Sweden. Theſe are the only two paſſages of his hiſtorical ſtatement that require to be noticed, the remainder being inapplicable to the ſubject under conſideration.

Your correſpondent ſays, 'Mr George Cotterel, iron-founder, Leith Walk, invented one altogether of caſt-metal, except the frame. I am not certain (he adds), whether Mr Cotterel or Mr Meikle was the firſt inventor of the principles of this machine; but I underſtand that Mr Meikle claims the invention in this country.' This is the firſt time, I believe, that ever Mr Meikle and Mr Cotterel were linked together in one paragraph. Indeed, it is wonderful that any perſon, pretending to illuſtrate the queſtion, could make a compariſon; for, in fact, the two machines have little more affinity to one another, than a brewer's dray has to the King's ſtate-coach.

In the firſt place, Mr Cotterel's machine had no drum;—this, of itſelf, proves that it was radically different from Mr Meikle's. In the ſecond place, it could not bear velocity, as the ſkutchers were not fixed; which proves it was altogether uſeleſs. Mr Cotterel's machine was, in fact, a mere toy, fit only for children to play with; and though ſanctioned by the Board of Truſtees at Edinburgh, who moſt generouſly gave twenty pounds of the public money to the inventor, yet was reprobated from the firſt by every man in the leaſt acquainted with the ſubject. The erection of it brought diſcredit, for many years, upon thraſhing machines of all deſcriptions; for people, who were ignorant of mechanics, naturally enough concluded, when they ſaw the imperfectneſs of this implement, that machines of every kind were equally defective. I ſpeak with certainty, when I ſay that the importation of Mr Cotterel's machine into Norfolk, at an early period, prevented thraſhing machines from getting a footing in that opulent county, till one was erected, betwixt three and four years ago, in the neighbourhood of Lynn, upon the principles of Mr Meikle's invention, which has changed the public opinion entirely. It was at the launching of this very machine, that the Duke of Bedford and Mr Coke attended, as mentioned in the account of that reſpectable Nobleman, preſented in page 275. of laſt Volume. In a word, Mr Cotterel's machine is laid aſide, becauſe it did not anſwer the object intended; whereas, Mr Meikle's has ſpread far and wide over the whole iſland, becauſe experience has proved the wiſdom of the principle upon which it is conſtructed.

I never knew, before I read your correſpondent's letter, that any perſon, directly or indirectly, gave the merit of inventing the thraſhing machine now in uſe to Mr Cotterel. That Mr Cotterel

terel invented *a* machine, I do not diſpute: But the queſtion is, Whether the one he invented was comparable to the one conſtructed by Mr Meikle? To perſons acquainted with the buſineſs, this is the only true view of the matter. Hundreds of people have attempted to conſtruct machines; but theſe attempts do in no ſhape leſſen the merit of the man who brought the invention to perfection.

I am convinced, however, that, with ſuperficial inquirers, the attempts of others have contributed greatly to leſſen the merit juſtly earned by Mr Meikle. I have often heard ſuch people exclaim—'Mr Meikle the inventor of the thraſhing machine! No ſuch thing. Others made machines before they occupied his thoughts.' This I may ſafely concede, without leſſening his merit; becauſe the inutility of every prior invention is now ſatisfactorily aſcertained.

With regard to the aſſertion, that thraſhing machines, on nearly the ſame principles with thoſe erected by Mr Meikle, have been long uſed in Sweden, I am ſorry to declare that your correſpondent has, in this reſpect, been groſsly misinformed. I think it was in 1790 that a thraſhing machine was erected in the neighbourhood of Gottenburgh, fully two years after one was put up for Mr Stein at Kilbeggie, as already mentioned. The circumſtances which occaſioned the erection at Gottenburgh were theſe. One Andrew Blackwood was taken from this country to lay water-pipes at that place; and he, obſerving the deficiency of Swediſh mechanics, wrote to a brother tradeſman, named John Girvan, who had aſſiſted at Mr Stein's machine, that it would be an object worth his while to viſit Sweden. This man accordingly went there, and actually erected, on Mr Meikle's principles, the firſt thraſhing machine ever ſeen in that country.

Having now gone over what may be called the hiſtorical part of the ſubject, I ſhall proceed to make a few remarks on the attempts made by A. G. to improve thraſhing machines.

Under this head of the ſubject, the communication of your correſpondent appears to be of little conſequence, and conveys no ſort of inſtruction. His *data* are by no means ſufficient to calculate the effect of any machine; as, for inſtance, he ſays, the firſt machine, which he attempted to improve, had a wheel of 40 teeth, driving a pinion of 7. On the ſame axis was another wheel of 40 teeth, driving a pinion of 7 on the axis of the ſkutch. The diameter of the drum 1 foot 4 inches, and, of courſe, the circumference 4.2 feet. Then, $\frac{40}{7} \times \frac{40}{7} = \frac{1600}{49} = 32.6$, the revolutions made by the drum for one of the wheel. Here is wanted the revolutions of the water wheel *p.* minute. Suppoſe them great, viz. 10 *p.* minute—

Then

Then the revolution of the drum	32.6	
Multiplied by —	10	
Gives the revolutions of the drum	326.0	*p.* minute
This multiplied by the circumference	4.2	feet
	6520	
	13040	
The velocity of the drum *p.* min.	1369.20	

Again, with reſpect to the ſecond machine which he erected—The dimenſions of the water-wheel, with its revolutions *p.* minute, are given—

A wheel of 96 drives a pinion of 9, on the axle of a drum 3 feet diameter.

Here, $\frac{96}{9} = 10.6$ revolutions of drum for 1 of wheel. Suppoſe the water-wheel makes 10 revolutions *p.* minute, this gives 106.0 for the revolutions of drum *p.* minute, which, multiplied by the circumference of the drum 9.424, makes 998.9, the velocity of the drum *p.* minute. Hence it appears, that ſuppoſing the water-wheels made 10 revolutions *p.* minute, then the velocity of the drum in the firſt machine was 1369.2 *p.* minute, and its velocity in the ſecond was 998.9.

From the above it does not excite ſurpriſe, that the drum of 3 feet diameter did not thraſh ſo much as the one of 16 inches, ſeeing that the neceſſary velocity was altogether wanting.

I do not pretend to ſay, whether theſe machines thraſhed clean or not. I ſuſpect they would not; for I never ſaw one, the circumference of the drum of which did not move with a velocity exceeding 2000 feet *p.* minute, that did its work as it ought to be done. Thoſe which I have found moſt complete, have the velocity of the drum from 2400 to 2700 feet *p.* minute.

I muſt delay the remainder of my remarks to an after occaſion, as I do not wiſh to engroſs too much of your Magazine, or prevent you from giving the cuſtomary variety of fare to your numerous readers. Different people have different taſtes; and it is certainly right to gratify them as far as circumſtances will permit. I am yours, &c.

ARATOR.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Method of Tanning Leather in Lewis, and other Iſlands of the Hebrides.

SIR,

ALTHOUGH the ſubject of the following communication be not immediately connected with agriculture, yet I flatter myſelf it has a remote connexion, and that its utility is ſuch as to deſerve being made generally known, through the medium of your extenſively circulated work.

I had no idea of troubling you, or your numerous readers, with the information I had collected on this point, becauſe I ſuppoſed it to be generally known; and preſumed that if the practice of the Hebridians were advantageous, it would have been, long ago, univerſally adopted. In their ſituation, I conſidered their mode of tanning leather, rather as the effect of neceſſity, which has no choice; than as reſulting from a deliberate preference to other modes, which they had equally in their power to adopt.

But having learned from the tranſactions of the Dublin Society, that Thomas Rankin of Ballaghey had ſucceeded in tanning leather by means of heath, I am induced to think, that the Hebridian practice is not ſo generally known as I at firſt ſuppoſed, and that it is of greater importance than I was aware. In fact the Hebridians have been in the habit of tanning leather with heath, and other plants, which they gather in moſſes, from time immemorial.

It may be neceſſary to explain to ſome of your readers, the cauſes which have led to the adoption of this and ſimilar practices.

In the remote Highlands and Iſlands of Scotland, you do not find ſociety ſubdivided into farmers, tradeſmen, and labourers, as in other places. Every man, and woman too, is accuſtomed to do every thing. The women ſpin and weave the cloth; dye, and wauk or thicken it with their feet upon an old door; and the men tan the leather, and make all the ſhoes that are uſed by the family. I have often been ſurpriſed at the addreſs they diſplay, in effecting their purpoſes with very imperfect inſtruments.

Among the remote mountains of the main land, the people uſe the bark of birch, of aller, of willow, or of oak, for tanning their leather; juſt as is practiſed in other places. But in the Iſlands, where there is very little wood, neceſſity has impelled the people to have recourſe to other means of effecting this object.

It was in the pariſh of Uig, in Lewis, Auguſt 1800, that I firſt learned they tanned leather in the way alluded to. This is, perhaps, the part leaſt frequented by ſtrangers, of any in the Britiſh

Britiſh dominions; yet the people are generally more cleanly in their perſons, are taller, and more elegantly formed, than occurs in ſeveral other diſtricts more frequently reſorted to. They have alſo a natural politeneſs, and diſpoſition to oblige, in which there is no mixture of affectation.

I afterwards learned that this mode of tanning leather is generally practiſed, not only in Lewis, but in moſt of the Hebridian iſlands.

Their mode of proceeding, as far as I could collect it, is as follows:

They firſt apply to the ſkins a quantity of lime, diluted with water; the lime is commonly procured from burnt ſea-ſhells. I ſuppoſe the intention of this may be, to make the ſkins part with the hair, the epidermis, and fat they may contain.

After the lime has operated its intended effect, the ſkins are ſcraped as clean as poſſible, waſhed, and immerſed ſome time in a running ſtream. I ſuppoſe the effect of this may be, to extract the gluten, or ſoluble mucilage, from the ſkins.

Laſtly, the tan-juice is applied which is procured from the green tops of heath (heather) or from tormentil and other aſtringent plants which grow in moſſes.

Theſe plants they collect, and having chopped or bruiſed them, they boil them a long time in a pot, adding, when neceſſary, new materials until a ſufficiently concentrated juice be obtained. When one potful is prepared it is ſet aſide, and another filled as before, until the quantity neceſſary for the ſkins on hand be procured.

It may be proper to obſerve that they prefer tormentil, where a ſufficient quantity can be procured, to every other plant. When this is not the caſe, they mix the tormentil, or ſome other aſtringent moſs-plants, the names of which I could not learn, with the heath. In other ſituations, where ſuch moſs-plants are not to be found, or are not known, they extract the tan-juice from heath alone.

The tan-juice, thus obtained, is ſometimes applied by rubbing it upon the ſkin, previouſly ſtretched upon a door, or other board. But the moſt common practice is, to immerſe the ſkins in the juice in a veſſel of ſufficient capacity to allow them to lye looſe, and to be eaſily turned. Frequently a hole dug in a moſs is uſed as a tanpit; and they think that the water, which oozes from the moſs, contributes ſome aid to produce the effect. They generally prefer moſs-water for extracting their tanning lee; and in all caſes the lee is allowed to cool before it is applied to the ſkins.

I heard of others who were not at the pains to boil their plants; but, having collected a ſufficient quantity of heath, or other aſtringent vegetables into a moſs hole, or other convenient place,

place, they allowed the cold water to extract the tanning principle, and then immerſed the ſkins.

I could not learn that it made any difference, whether the vegetables were uſed in a green ſtate, or were dried previous to their being uſed. But I underſtood it was neceſſary to avoid ſoaking them in water after they were gathered, as this would carry off part of their tanning principle.

After the ſkins have imbibed a ſufficient portion of the tan, they are ſtretched upon ſticks, and expoſed to the air. When dried, thoſe intended for upper-leathers are rubbed upon a door, to increaſe their flexibility.

Chemiſts have aſcertained, that the gallic acid, though naturally connected with tan, may be ſeparated from it, and is altogether a different ſubſtance; but they have not aſcertained what tan is, nor the mode in which it operates. In all the caſes that fell under my notice, it appeared that the tan never produced its effect, in hardening or corrugating the leather, and rendering it impervious to water, until after the ſkins were dried, and expoſed ſome time to the air, juſt as the ink is never good until after it has been frequently ſhaken and expoſed to the air.

The tan leaves the ſkins of a brown colour, and the black dye is never applied until after the leather is made into ſhoes. The black dye is communicated by anointing the ſhoes with a ſolution of ſulphate of iron; and ſometimes, where this cannot be got, they have recourſe to a ferruginous ſpring. The iron ſtrikes a black colour with the tan previouſly exiſting in the leather, and, at the ſame time, renders it more impervious to water.

The ſkins of horſes and black cattle, who have either died, or fallen from rocks, together with thoſe of a few beaſts ſlaughtered for their own uſe, are chiefly prepared in this way, and are generally ſufficient for the internal conſumption of the people. The thicker ſkins are uſed for ſoles, and the thinner, and more flexible, for upper leathers. In places reſorted to by ſhipping, they commonly uſe ſpun hemp and roſin for ſtitching their ſhoes. In other places, they uſe a fine thong of tanned horſe leather for this purpoſe; and it is ſurpriſing how tight and neat ſome can make ſhoes by this laſt mode of ſtitching.

I have had ſhoes (provincially called *brogbar*, or *brogues*) tanned and made in the way here deſcribed, which were much eaſier for the feet, afforded a firmer ſtep upon craggy mountains, and laſted longer, by double the time, in traverſing moors, and other rough ground, than I ever experienced in the beſt London leather of equal thickneſs.

I ſhould have obſerved, that extracting the tan by boiling, is always reckoned the moſt œconomical practice, as it extracts a much greater proportion of the ſtuff from the ſame materials, and enables them to make the liquor of a certain known ſtrength.

ſtrength. Now, leſt any part of the effect may depend upon the material of which the boiler is compoſed, it may be proper to mention, that in Lewis, and, as I was told, in other iſlands where this mode of tanning is practiſed, the only boilers, and veſſels for holding liquids of every kind, in common uſe, are compoſed of wrought clay, firſt ſlowly dried, and afterwards baked. Theſe the people make for their own uſe, of ſurpriſing neatneſs and durability, conſidering that they have no other tools to work with but their hands.

From the great, and ſtill increaſing demand for tanned leather, a demand that ſeems now to exceed the quantity of bark that can be procured to do it in the ordinary way; and from the ſucceſs that ſeems to have attended the experiment in Ireland, I am induced to trouble you with this minute account of what I could learn reſpecting the mode of tanning in the Hebrides. My object will be accompliſhed, if any of your ingenious correſpondents who have leiſure, and command of the materials, can be induced to make the neceſſary experiments, with a view to aſcertain, 1*ſt*, Whether their practice may be advantageouſly adopted into common uſe; 2*d*, Whether it may not be improved upon.

From my ignorance of the art of tanning, and of the Gaelic language, I am conſcious that many ſteps, highly neceſſary to the ſucceſs of the operation, may have eſcaped my notice. Though I had frequent opportunities of ſeeing the ſkins in their ſeveral ſtages of preparation, yet theſe were only incidental objects of attention, and I found the people very ſhy in anſwering queſtions concerning them; becauſe ſuch queſtions excite a ſuſpicion that you are connected with the Exciſe, who are very ſharp in ſeizing all the ſkins they can find, that are tanning in a private way. My oral information was derived through the medium of interpreters, who generally ſpoke the Engliſh language imperfectly. But if this mode of tanning be capable of being rendered uſeful to the world at large, it is to be hoped that ſome inhabitant of theſe iſlands, into whoſe hands your work may come, will have the goodneſs to rectify my errors, and to furniſh you with a more correct detail of the proceſs.

J—— H——.

Edinburgh, Jan. 1, 1803.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Raiſing of Flax.

SIR,

IF you think the following hints to farmers on the raiſing of flax worth a place in your uſeful Magazine, you will oblige me by inſerting them.

The

The raiſing of flax in Scotland, has long been held out as an object of national importance; and premiums have been annually given by the Board of Truſtees, for many years paſt, to encourage the growth of it. Theſe premiums have certainly a tendency to produce the deſired effect; but they never can, and never ought to be ſuch, as to induce a farmer to raiſe an unprofitable crop. A much greater inducement, and which appears to me to deſerve the ſerious conſideration of every farmer who has it in his power to raiſe this article, has been held out for ſome years paſt, and has every appearance of continuing for ſome years to come, viz. the high price of flax in every part of the Continent.

The price of the foreign, regulates, in a great meaſure, the price of this country flax; and the following may be taken as nearly the average price of the beſt twelve-head Peterſburgh flax for the laſt nine years.

Anno 1794, at 35*s. p.* cwt. of 112 lib. Engliſh.
1795, at 53*s. p.* do.
1796, at 54*s. p.* do.
1797, at 52*s. p.* do.
1798, at 48*s. p.* do.
1799, at 59*s. p.* do.
1800, at 66*s. p.* do.
1801, at 72*s. p.* do.
1802, at 75*s. p.* do.

Peſent price, Jan. 1803, at 80*s. p.* do.

As the price in 1802, is more than double that of 1794, it is evident, that, if the price of flax raiſed here, bears any proportion to that raiſed in Ruſſia, (and it muſt be ſo), the farmer who could raiſe it in 1794 and 1795 without a loſs, muſt have had a great profit in 1801 and 1802, ſuppoſing the ſeaſons to have been equally favourable. If this circumſtance is not ſufficient to ſtimulate our farmers to cultivate the article, it would appear that there are ſome great objections which cannot be got over; and, in that caſe, that the premiums granted by the Board of Truſtees are loſt, and might perhaps be better applied in bounties upon the importation of flax from America or elſewhere, or the raiſing of it in ſome of the colonies.

Be that as it may, the high price of flax is certainly occaſioned principally by the monopoly enjoyed by the Ruſſians, Germans, and Dutch, as they find that we can neither raiſe a quantity equal to our conſumption at home, nor get it from other countries; and it will probably continue to be high, until our own farmers, the farmers of other countries, or the Ruſſians themſelves, are induced, from the high price, to raiſe and bring to market a quantity greater than the demand. A. P.

8*th January* 1803.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Tithes again conſidered.

SIR,

THE ſilence of all parties for ſome time paſt, reſpecting the grand queſtion of Tithes, gave me reaſon to hope that the ſubject was at length fairly laid to reſt. But it would ſeem, that the reaſon why the aſhes of controverſy were not ſooner ſtirred up, was only that in the end they might be blown into a flame. Your correſpondent T. S. ſeems to have conſidered and reconſidered the ſubject; and, leſt his argument might appear to have a weak ſide, he reſts his defence on the ſtrong footing of *right and juſtice*. Thus, to be ſure, he tries to ſhut our mouths as completely as though he were to join iſſue with thoſe who heſitate not to trace them back to the remote period of the days of the Old Teſtament. If, indeed, 'juſtice is out of the queſtion,' while we force the holders of tithes to give up their *right*, then, certainly, the leſs that is ſaid about the buſineſs the better; for however much a ſet of farmers and others, who have an intereſt in the affair, may indulge their ſpleen in periodical publications, yet a wiſe Legiſlature will moſt unqueſtionably never be tempted to deviate from the path of rectitude and ſound policy.

Are we then to believe, that the land-owners, who hold ſeven eighths of the property of the kingdom, are the *monſtrum horrendum*, the Polyphemus, who is keen on ſwallowing up the weak innocent lambs, who have a right to the other eighth part? I fear that to tell this, would be but an indifferent way to get the landed intereſt to ſtand firm in defence of the preſent ſyſtem of tithes. But if this gentleman is inclined to diſpute the affair on the ground of *right*, even into that field we will follow him. The clergy are compoſed of a ſet of men whom I revere; men, without whoſe counſel and example we ſhould ſoon degenerate, however poliſhed might be our manners, or however far advanced we might be in ſcience, into mere worldlings, regardleſs of our immortal concerns. While, therefore, I argue the matter, I mean not to attack them, but to reprehend the plan by which they are maintained.

From what mother, then, ſprung this poor man's ewe lamb? (the expreſſion is your correſpondent's own).—What was the origin of tithes? If your correſpondent will lay open before me the word of inſpiration, he muſt be prepared to ſhow

that we are ſtill bound to adhere to the ceremonial diſpenſation; that our peace-offerings and our free gifts muſt yet be laid on the altar; that our political œconomy muſt ſtill be the ſame as it was in the days of Moſes; and that the ſons of Levi, as a reward for miniſtering in the holy place, ſhould 'every *third* year, 'which was the year of tithing, tithe all the tithe of the in-'creaſe of the land.' Or, if he will carry us back to the remoteſt antiquity, I will pledge myſelf to point out the time when tithes were not; and I will take it on me to ſhow, that, like the feudal ſyſtem, like thirlage to mills, and all the '*arrage and carrage*' * under which ſo many long groaned, they had their origin in the peculiar circumſtances of the times. The tie which bound the vaſſal to his baron, was perhaps indiſpenſable in the days of anarchy and confuſion; but when, at length, a free government dawned on our iſle, it was found neceſſary that this tie ſhould be forcibly cut aſunder. The intolerable labour of grinding a few handfuls of corn, by means of the quern, probably gave riſe to what is now reckoned a very ſimple machine, our meal mill; a machine which, were it the invention of even our own days, it might poſſibly be proper to reward with a patent: but the dues for grinding, which it was agreed ſhould be given to the proprietor of the mill as a compenſation for the expence he had incurred, (and it may be that they were thought at the time to be the only proper compenſation), were ſoon found to be a ſtrong bar to improvements in agriculture; and therefore the Highland Society, with that ſpirit which became them, procured it to be enacted, that in thoſe places where the bondage ſtill ſubſiſted, the proprietor ſhould *be forced*, on an equivalent, to give them up. But I will doubtleſs be told, that though tithes had their birth in the dark ages, when the Romiſh Church uſurped ſuch dominion over the conſciences and perſons of men, as ſtill to make the mind revolt with abhorrence, they have nevertheleſs long been recogniſed by the law of the land; that, therefore, they are now become as really and truly property, as the beſt titled eſtate in the kingdom; and that it would be perfectly unjuſt to force the holders of them, without their conſent, to give up this right. If we are to wait till we obtain the entire and complete conſent of the Body to this meaſure, we ſhall prove ourſelves as far advanced in idotiſm, as was the man who patiently ſat down on the bank of the river, to wait till its waters ſhould run paſt. Strange! that you ſhould every day read advertiſements in the papers, giving notice that a bill is to be brought into Parliament (not certainly with

* An expreſſion inſerted in the old feu charters, denoting every kind of carriages which the baron might chooſe to exact of his vaſſal.

with the approbation of all parties) for making a turnpike road, and yet talk of force and injuſtice here. Why ſhould the kingdoms of Great Britain and Ireland have been united, while ſuch a large proportion of our friends on the other ſide of the water, were decidedly averſe to the meaſure, and when it was to do ſuch a material injury to the houſeholders, and the ale-ſellers of Dublin? Were it neceſſary to obtain the conſent of all parties to every meaſure which was to be brought about, none, even the moſt ſalutary, ſhould ever be carried into effect; for there are always ſome mules among us, who, ſince they chooſe not to be led, ought to be driven.

Why inſiſt ſo much on *right and juſtice?* Are not the clergy a ſet of men who are paid for doing a certain piece of work? Where then ſhould be the mighty injuſtice of altering the mode of payment? Your correſpondent will doubtleſs tell me, that we have long gone on in the ſame way; and that, on the faith that we are to continue, benefices are daily bought and ſold in England at a fair price, like ſwine in a market. So, I will tell him, are the Africans in Jamaica; and ſo does the ſmuggler ſell his geneva and his tea on the faith that he ſhall be paid. Each takes his riſk, and each hopes that no meaſure will be brought about ſoon enough to affect him.

But if your correſpondent will inſiſt on *right;* what right, I will now roundly aſk, has the Church to be ſubſiſted by the landed intereſt of the nation alone? O! it is law, he ſtill anſwers. Are our laws, then, like thoſe of the Medes and Perſians? If it is confeſſed that we abide not by the Moſaic diſpenſation, I know not how the idea can be reconciled, of laying the whole burden of the Church on the ſhoulders of any one ſet of men in the ſtate. There is not a ſingle inſtance in which the landed intereſt does not bear its ſhare of taxes equally with the reſt of the community; and this, thanks to the law, they have into the bargain: while a gentleman who comes home with a fortune, or he who makes his money by commerce, if he chooſes to throw what he has laudably earned into the ſtocks, or otherwiſe lay it out to intereſt, can have an opportunity of hearing the oracles of God illuſtrated, without paying a ſingle ſixpence for the ſupport of the prieſthood. It is idle, nay, it is highly indecorous, to amuſe us, by talking of *perfect right and juſtice,* while ſuch things are. In vain need we be told that this has nothing to do with the right by which the clergy hold their tithes; in vain exclaim, that we lay hold of periodical publications to bring forward our popular arguments; for it is well known, that the diſapprobation of the people at large againſt them is become ſo ſtrong, that it muſt find utterance ſomewhere; and that the grievance is turning ſo ſerious, as calmly to call for

redreſs. I ſay, grievance: nor let it be ſuppoſed that I am now croaking over our pretended evils, like thoſe who, but a few years ago, were branded with the name of *reformers*; I ſpeak as a farmer, and of what belongs to farming.

To come to the point, then, which materially concerns agriculture—Whether we ſhould gain as much by the abolition or the commutation of tithes, take whichever name you will, as to juſtify the meaſure? This, ſays your correſpondent, is what has never yet been aſcertained, and what we would do well firſt to ſettle. And to the ſame effect, another of your correſpondents long ago aſked, whether thoſe lands which are free of tithe were, or were not, better cultivated than thoſe which are ſtill loaden with the burden? Now, none of thoſe gentlemen can expect a direct anſwer to their queſtion. It were quite unreaſonable to ſuppoſe, that freedom from any burden whatſoever ſhould immediately begin to be felt: For, where men have gone on for a length of time in a beaten track, habit lays ſuch faſt hold on them, that it is long, even after the burden is removed from their ſhoulders, before they can be rouſed up to vigorous exertions. Suppoſe that this moment tithes were aboliſhed, a proprietor may find himſelf ſo circumſtanced, that though he ſhould have all the inclination in the world, and ſhould hold out every encouragement, he may not find tenants poſſeſſed of ſpirit enough to follow up his enterpriſing ſchemes. Their activity may have been laid to reſt, by the oppreſſion under which they had been ſo long weighed down; he does not find it convenient to have all his land in his own poſſeſſion, and though he ſhould ſet a neighbourhood an example of good farming, they may not, from theſe reaſons, be inclined immediately to follow it. It is by ſlow degrees that improvements begin to be made, and a thouſand things may occur to retard them. But if theſe gentlemen ſhould urge me to give a direct anſwer, I will do it; and I will aver, that thoſe laudable and ſpirited improvements which have taken place throughout the greater part of Scotland, and are ſtill going on, could never have been carried into effect in the face of this grating ſyſtem of tithes. Will any man tell me, that a farmer could, during ſeveral of the firſt years of his tack, go on to lime at the rate of a thouſand bolls of lime, leſs or more, and dung many acres at the rate of 5l. *per* acre, (and both theſe are by no means unuſual on a very ordinary ſcale), and otherwiſe to improve, by draining, trenching, &c. while he had the view before him of his good friend the parſon coming every year to ſhare in his profit? I am ſure, that were he to act ſuch a ſtrange part, if he ſhould not be inſtantly ſent to bedlam, he would, at leaſt, be thought more worthy of a place there than many who are confined within its miſerable walls. No! the

the conduct of the Lothian farmers, of the Carſe of Gowrie, the Angus, the Aberdeenſhire, in ſhort, all the ſpirited farmers of Scotland; the high ſtate of improvement to which they have brought their farms, and the zeal with which they ſtill continue to go on, can be reconciled on no other principle than this, that they are free from every kind of bondage, whatever may be its nature. Here, let not Mr T. S. admoniſh us, that tithes are only a grievance of their kind, and that improper clauſes in tacks, ſlovenly farmers, or even the management of Mr Secretary Young, are alſo grievances in their way. This is a ſhifting of the queſtion; a manœuvre, ſuch as a ſkilful general makes, to divert the attention of his enemy from the principal object. If a thing is bad, nothing that is of leſs enormity can make it right. If there is a crying evil, which calls aloud for redreſs, I know not how pointing out other ſmaller faults will help us on to a cure. A landlord gets rid of a bad tenant as faſt as he can. If Mr Young errs in his agricultural practice, I am ſure, he wants not *line upon line, and precept upon precept*—all the correction which a free agent can, or ought to receive: But will this rid us of tithes? Only ſhow yourſelf ſerious in trying to reform the abuſe, and the whole body of the clergy is inſtantly on your top: the hue and cry is forthwith raiſed, that you are going to undermine our well-poiſed Conſtitution as it is eſtabliſhed in Church and State; and you are from that day marked down as a Jacobin, a Democrat. This is the reaſon why the meaſure has not been carried into effect; not that men are ſtupid in crying down tithes, without taking any ſteps to get rid of them, as this gentleman tells us. He cannot be ignorant, that attempts have been made, aye and long before agriculture was half ſo much attended to as it is at the preſent day: but then the eloquence of the Order was roufed, the ſympathy of the people was wrought on, the thunders of the Church were hurled againſt the propoſers of the meaſure, and, in ſhort, the landed intereſt acted the part of the good-natured man with a ſcolding wife; they quietly gave up the cauſe, rather than be '*deaved with the din.*' Sure this gentleman is more ſtupid than he would have us to be, if he forgets that in every encloſing bill, every bill brought into Parliament for dividing and improving waſte lands, an adjuſtment with regard to tithes, is invariably made a *ſine qua non.*

I am well aware, that let a bill be brought into Parliament when it may, for commuting or aboliſhing tithes, ſtrong and ſerious objections will be urged againſt it. All the *outs and ins, the buts and ifs*, brought forward by this gentleman in a ſtring, will doubtleſs reſound from every quarter againſt the meaſure. What could be expected in this inſtance, when even thoſe bills

which Sir John Sinclair brought in during his presidency, which had been long and loudly called for, were ignorantly opposed? What could be expected, when you see our prints of the present day teeming with language such as the following? 'There is not a common in the kingdom,' said a London paper on the last day of the year which is but newly gone, 'which has not produced food for cattle, more or less, in proportion to the nature of its soil; not one on which cattle have not consumed every particle of food so produced. Many commons have been highly useful in rearing stock, many of them afford excellent pasture; cottagers still find an asylum upon them; and it is only there we can now expect to see any remnant of the once bold independent peasantry of England. If the present land-owners and farmers of England were at a loss to find out some method more effectual than another, to raise the price of provisions higher than they now are, they could not hit upon a better plan, than that of taking into their immediate occupation and disposal all the waste and common lands of the kingdom. They could then produce as little as they pleased, and fix their own price on every thing.' If such is the language yet held with regard to waste lands, what opposition, what strange inconsistencies, may not those who urge the abolition of tithes expect to meet? Indeed, the ingenuity with which your correspondent, and all his associates, shift from objection to objection, remind me of the story of Will-o'-the-Wisp mending his cloke. 'If it will not be this way,' said the spirit of the water, shifting his cloke, and fitting it first here, and then there, 'it will be that way, and if it will not be that way, it will be this way.' Were all this gentleman's doubts and fears held out to our late Premier, much as several people pretend to ridicule him for trying to divert his spleen by farming, he would despise them all; and, instead of shrinking from the discussion, he would there also, if properly supported by those whose interest it was to stand forward to his aid, shew himself the 'pilot who could brave the storm.' Fear not, then, ye land-owners, to lay a finger on tithes! Tremble not lest, while ye overturn the tottering fabric, ye should at the same time undermine the well-built pillar of the State. They have no connexion with each other; or, if they have, tithes are a part of the building, which is so ruinous, so dangerous to the rest of the edifice, as to require that it should be pulled down and built anew. Since the days of Henry VIII. the Church has undergone several useful alterations and repairs; yet still it is a Church, and still our free Government is not overthrown. Nor shall it be, by the measure which we now propose. Unhurt, it will be yet more strong; and it will

will be ſhewn to the world, to be a building which its enemies, with all their fury, may attack in vain.

Redouble then your exertions; calmly perſevere. In fine, never let the words of Æneas to his weather-beaten Trojans be effaced from your hearts,

'*Durate, et voſmet, rebus ſervate ſecundis.*'

I am, Sir, your, &c. W.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Culture of Turnips.

SIR,

A Correſpondent who ſigns himſelf '*A Northumberland Farmer*' in the laſt Number of the FARMER'S MAGAZINE, having made remarks at ſome length upon my Letter of the 19th October 1801, inſerted in that work, I beg leave to offer ſome animadverſions upon his communication.

In the Letter alluded to, I merely aſſerted a well known fact, that in the vicinity of Ripon, in which deſcription I meant to include an extent of country containing many thouſand acres of land, turnips were (with few exceptions) ſown in *drills* at about twelve or thirteen inches diſtance in the rows. I further added, that I believed the farmers in Yorkſhire, upon land proper for growing them, were not inferior in the cultivation of turnips to thoſe of any country; and though this has been controverted by your correſpondent, and much ingenious argument employed in favour of the Scotiſh method of ſowing them in high ridges of twenty-eight inches diſtance in the rows, yet they have not made me a convert to his opinion.

We have had turnips cultivated, in the ſame manner as I ſuppoſe is done in Scotland, in ridges, dunged in the furrows by women and children, nearly the ſame as for potatoes; the ridges ſplit with a double mouldboard plough, and the ſeed ſown upon them with a drill: But this is almoſt entirely abandoned in favour of the drill fixed to the plough, and is now ſeldom uſed, but upon wet or very ſtiff ſtony ground, difficult to hoe, and which is very improper land to attempt to grow turnips upon.

I have ſome years ſince ſeen lands ſown after this method, and am fully ſatisfied that it is not, generally ſpeaking, more advantageous than the Yorkſhire, or, as your Northumberland friend is pleaſed to call it, the Ripon method; nay, I firmly believe, upon good turnip land, as large, or even a larger quantity of turnips may be produced, *per* acre, by the latter, than by the former method.

Your correſpondent obſerves very juſtly, that there is more than twice the number of rows in one acre of land in the Yorkſhire ſyſtem, than there is in the other. But I by no means agree with him, when he ſays, that when one is hoed for 4s. *per* acre, the other may be done for half a crown. The turnips may perhaps be made of a proper thinneſs, with reſpect to quantity, at an expence in that proportion; but no field can be ſaid to be properly handhoed, unleſs the land is moved by the hoe in every part, however diſtant from the plant. Indeed, in this county, it is a common practice for good farmers to hoe their fields completely over, even when ſome parts have failed to produce turnips, merely to pulveriſe the ground, and prevent the growth of weeds.

Your friend argues much upon the great benefit of uſing the horſe hoe; and, where it can be done effectually, I agree it is an excellent implement: But this is no argument againſt the Yorkſhire method of ſowing turnips, as we have hoes that may be ſet to any diſtance; and if the land is clear of ſtones, will hoe between the rows very well at twelve inches. I know not to what perfection they have invented hoes in Scotland; but I have not yet ſeen any, that could be uſed to any advantage, *acroſs the lands* in a *field growing turnips*; and as you ſow them in the North on high ridges, it appears impoſſible to do them ſo; and therefore they hardly can, I think, be properly cultivated without hand-hoeing *at leaſt once over*.

I really cannot underſtand how hand-hoeing, if properly executed, can be of leſs advantage to the land, than if done by horſes: The latter may be leſs expenſive; but perhaps the labour, trouble, and inconvenience attending the putting the dung into the ridges, is fully equal to that.

One very material objection to the Northumberland method, (in my opinion an unanſwerable one), is, the laying the land up in high ridges, which is a means of evaporating the moiſture from the earth, and of expoſing the young and tender plants, in a dry ſeaſon, to piercing cold winds, and the ſcorching ſun. I have formerly ſeen turnips ſo ſown, entirely eaten up by inſects and the fly, when thoſe done the other way were but little injured, their growth having been leſs retarded by dry weather. How your friend can make his turnips (where they are but 11 inches diſtant in the rows) as large as 8½ inches diameter, I acknowledge I am not able to find out. But ſuppoſe, for the ſake of argument (for I do not admit the fact) that there *is the difference* in the weight of the turnips your friend ſays, yet I contend, that they are not ſo advantageous to a farmer, as thoſe of a leſs ſize.

In good, well cultivated land, in the Yorkſhire method, if properly hoed, the root of the turnip will meet and cover the ground.

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Theſe are thought to be, and (generally ſpeaking) certainly are, better than thoſe that are larger, and ſet at greater diſtances; being leſs liable to receive injury from wet and froſty weather than large ones; and are not of ſo ſpungy a nature, but of a firmer and more nutritive quality. For the truth of this aſſertion, I appeal to any unprejudiced man who has fairly tried the experiment, whether he reſide in England or in Scotland. I am, &c.

A YORKSHIRE FARMER.

Ripon, 13th January 1803.

P. S.—Being diffident of my own opinion upon ſo important a ſubject, oppoſed to ſo able a writer as your correſpondent from Northumberland, after the above was written, I ſent it and the Magazine to a friend of mine (who has cultivated turnips with great ſucceſs for a number of years), and requeſted his opinion upon it. In anſwer, I received from him the following letter, in which is contained ſo much good ſenſe, ſound argument, and real experimental knowledge, that though his ſentiments and my own are ſomewhat ſimilar, I hope I need make no apology for tranſcribing it.

DEAR SIR,

I eſteem myſelf under much obligation to you for the peruſal of the Farmer's Magazine. The work appears to be very judiciouſly conducted, and certainly is aided by a number of intelligent correſpondents; and in particular one, who writes largely on the different modes of cultivating turnips. Of this letter you deſire my opinion.

It is a very difficult matter, in comparing different methods of huſbandry, for a perſon entirely to diveſt himſelf of local prejudice. He is diſpoſed to think, that his own practice, and that of his neighbours, is the beſt that can poſſibly be followed. But, in order to form a true judgement upon the preſent ſubject, let us impartially examine it.

It is well known, that ſome men who have been looked up to, as the firſt agriculturiſts in theſe kingdoms (I mean the farmers of Norfolk), give a decided preference to the broadcaſt method of ſowing turnips; but it muſt be allowed by every one who has ſeen the Yorkſhire method of ſowing them, that it is ſuperior to the broadcaſt in every point of view: it is allowed to be ſo by the Northumberland farmer.

I readily admit and believe, that the Scotch drill will anſwer better than the Yorkſhire one, upon cold ſpungy land; but upon all fields properly called turnip-land, I believe every unprejudiced perſon will give a preference to the Yorkſhire one.

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The advocates for the Scotch drill aſſert—'That they grow their turnips to greater ſize, and likewiſe produce a ſuperior weight per acre.' The firſt will readily be granted; but the producing a greater weight upon a given quantity of land will by no means be conceded to them.

When turnips are ſown at a diſtance of 28 inches from row to row, and happen to plant badly, which will frequently be the caſe, then the general deficiency will be much greater in fields ſo managed, than in ſuch as are ſown in rows at only 12 inches diſtance.

I have frequently heard it aſſerted, that farmers in general are a ſet of men ſo obſtinately wedded to old cuſtoms, and ſo prejudiced againſt innovation, that even a certainty of advantage will hardly tempt them to deviate from the beaten track; but this, with reſpect to the ſowing of turnips, does not by any means apply to the farmers in this county: for the Yorkſhire drill was no ſooner invented, but its advantages over the broadcaſt method were generally acknowleged; and its uſe (with very few exceptions) became univerſal. We are no ſtrangers to the ſowing of turnips with the Scotch drill. Several perſons have made a trial of it; but the reſult was not by any means ſuch, as to eſtabliſh its ſuperiority over the mode now in uſe; and the practice is, I believe, nearly diſcontinued.

Some few years ago, I made trial of ſowing ſome of my turnips at double the uſual diſtance from row to row, by uſing two ploughs, one with a drill fixed to it, and the other without one; but, after following that method for two years, I reverted to my former practice, which experience convinced me was more beneficial. 'Tis true, my turnips with the wide intervals grew ſomething larger; but I found them on that account more liable to injury from the froſt, and likewiſe, after Chriſtmas, leſs nutritive than thoſe of a moderate ſize; nor had I any reaſon to believe, that my turnips with the wide intervals exceeded, or even equalled the weight per acre of the others, which were only 12 inches diſtant.

In eating turnips grown upon raiſed drills, a great proportion of the dung and urine of the cattle or ſheep, which falls in the hollow of the interval, muſt eſcape below the reach of the plough, and conſequently be loſt; which will not be the caſe when turnips grow upon a level ſurface. It is alſo well known to thoſe who are accuſtomed to eat their turnips with ſheep, that this animal, by rolling itſelf upon its back, will ſometimes get into ſuch an awkward poſition, as not to be able to recover its feet; and if not found and releaſed in a proper time afterwards, dies; and as this, upon a level ſurface, generally happens in the furrow,

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ſo the intervals of the raiſed drills preſenting ſo many furrows, muſt make the danger proportionally greater.

When it is conſidered, that, in this part of Yorkſhire, we grow turnips that yearly feed vaſt quantities of cattle and ſheep of our own breed, as well as ſeveral thouſands of ſheep from Northumberland, we ought, if experience can be ſaid to teach people any thing, to be allowed to know ſomething of this buſineſs; and having made trial of the three different modes above mentioned, we certainly ſhall hold to that which we think is beſt.

It is not every farmer who *can reſort to mathematical* calculations to found his opinion upon; but a man of common ſenſe can make a comparative eſtimate of the value of a crop, according to the greater or leſs time that it will maintain a given number of ſtock. Could the farmer plant turnips upon his ground, and grow them to a given ſize with equal facility, as the mathematician can calculate their weight upon paper, we ſhould then have it in our power to make proper concluſions without danger of miſtake; but as it will not be ſo, I only wiſh the Northumberland farmer was in this neighbourhood at preſent, to convince himſelf, by ocular demonſtration, that the modes of other counties may be equal to his own.

The above is my real opinion reſpecting the different methods of cultivating turnips. I am highly flattered to find it agrees ſo nearly with yours. I am, &c.

Remarks on the above by the Conductor.

The culture of turnips forming a material branch of rural œconomy, the opinion of the Conductor may perhaps be expected by the readers of this work, now when the ſubject has been ſo ably diſcuſſed by correſpondents on each ſide. The following curſory remarks are therefore offered.

Turnips have been partially cultivated in Britain for a century paſt; but, ſince 1770, this root has gradually ſpread over every quarter of the iſland. Two objects are in view when turnips are raiſed; firſt, to clean the ground; ſecondly, to prepare winter food for cattle and ſheep. Both objects are of great importance, though undoubtedly the firſt claims the precedence; for if the ground is not ſufficiently cleaned when carrying a crop of this root, the whole of the after rotation is neceſſarily injured.

If it is admitted that the beſt method of cultivating turnips is the one that cleans the ground moſt effectually, then we ſhould think the queſtion is determined in favour of drilling, at ſuch intervals as allows the horſe-hoe to be ſufficiently uſed. By a horſe-

hoe,

hoe, we mean either the Dutch hoe, provincially called a ſcraper, or a ſmall plough of the ordinary conſtruction, drawn by one horſe; and ſuch cannot in any ſoil be ſucceſsfully applied, unleſs the intervals betwixt the drills are from 24 to 30 inches. Horſe-hoeing at leſſer diſtances is a perfect mockery; and no hand labour, unleſs it is given at a rate of expence exceeding cuſtomary profits, can equal the benefits ariſing from introducing horſe-hoeing, where turnips are extenſively cultivated. We preſume it is underſtood, that the hand-hoe is uſed to ſingle out the plants, and to clean the ſide of the drills before the laſt horſe-hoeing is given.

Our opinion is therefore decidedly in favour of drilling turnips—this mode permitting every branch of the management to be executed in the moſt perfect way. The plan defended by our Yorkſhire friend is confeſſedly ſuperior to the ancient way of ſowing broadcaſt, though ſtill, as the benefit of horſe labour is not gained, or at leaſt in a very imperfect manner, it muſt be conſidered as inferior to the northern ſyſtem. If the aboliſhment of naked ſummer-fallow on all the lands capable of carrying turnips is intended, it can only be ſafely executed by a ſteady adherence to the mode pointed out by our Northumberland correſpondent. When in Yorkſhire, we learned that a conſiderable proprietor would not take broadcaſt turnips as a fallow crop, and we judge he was in the right.

Whether a greater or leſſer crop of turnips will be procured from drilling than from broadcaſt, is a queſtion often agitated. In our opinion, the iſſue is immaterial, unleſs it can be ſhown that both modes admit the ground to be equally well managed, which is the true criterion for determining their merits. We do not entertain a doubt, but that it is practicable to raiſe as heavy, nay even a heavier crop in the broadcaſt faſhion, than by drilling, if the plants are very carefully ſingled out; but that ſuch care can be univerſally beſtowed, would be the height of folly to expect. In many counties, the rate of population would not permit ſuch a meaſure to be attempted: hence, horſe labour becomes abſolutely neceſſary, if turnips are to be extenſively and ſucceſsfully cultivated.

We muſt remark, that our Yorkſhire friend ſeems imperfectly acquainted with the drill huſbandry, otherwiſe he would not have aſſigned diſadvantages to it which do not exiſt. The ridges are generally formed with two bouts of a plough in the firſt inſtance, before the dung is ſpread into the furrow; and this ridge is reverſed or ſplit, not by a double-moulded plough, but by two bouts of the ſame implement which originally formed it. The height of the ridge is very trifling; for by the application of a light roller, both before and after ſowing, the ground is near-

ly

ly brought back to a level. The expence of ſpreading the dung into the drills is very little more than when it is ſpread on the ſurface at large; and this trifling difference (not ſixpence per acre) is ten times more than compenſated by the extra benefit gained by the crop, in conſequence of the dung being completely covered in. It is not cuſtomary to earth up turnips, unleſs when they are grown on wet lands, as ſuch a practice prevents the root from ſwelling in ſize; conſequently the danger to ſheep, when fed upon turnip fields, apprehended by our correſpondent, can very rarely take place.

Though our opinion, on this ſubject, coincides with what was given by the Northumberland farmer, yet we muſt acknowledge that the arguments uſed on the other ſide, by our Yorkſhire friend, are ingeniouſly and ably ſtated. They diſplay conſiderable knowledge in the practice of agriculture, and prove the writer poſſeſſed of an ardent, though miſtaken deſire to promote the welfare and proſperity of that ſcience. N.

FOR THE FARMER'S MAGAZINE.

Account of the Peat Moſſes and Shell Marl on the Eſtate of Dunnichen in the County of Forfar. Extracted, by permiſſion, from a Manuſcript Hiſtory of Peat Moſs, by Andrew Steele Eſq.

THE changes that have occurred, and the revolutions that have taken place during ages, and are ſtill in their progreſs, in the filling up of the vallies of the earth, cannot perhaps be more beautifully diſplayed to the philoſophic eye, than by examining Reſtenceth peat-moſs, the property of George Dempſter Eſq., in the pariſh of Forfar.

Situated 200 feet above the level of the ſea, in a hollow from which the water of a copious ſpring hath had no clear and ſufficient iſſue, this peat-bog, conſiſting of about 70 acres, muſt have been once a lake. Indeed, that is ſufficiently obvious, not only from its connexion with a very conſiderable lake, called Reſteneth Loch, almoſt a mile in length, but eſpecially from a bed of ſhell marl found beneath the peat, and ſituated immediately above the ſolid ground. The bed of marl (of which ſubſtance there is alſo a great quantity found in Reſteneth Loch) is in ſome places 15 feet in thickneſs, gently diminiſhing towards the margin of the moſs. Its average thickneſs is about 5 feet; but the layer is very irregular. On diſſolving a portion of this marl in the muriatic acid, I found it a very pure calcareous matter, containing only about a tenth part of its weight of peaty and other ſubſtances.

The

The ſhells compoſing the marl, many of which are quite entire, are of the water ſnail or cochlea kind. (*Helix Putris*, Lin.)

The great value of ſuch a bed of marl ought to be a powerful inducement to every one that poſſeſſes any moſs grounds to ſearch them carefully, and particularly in their deepeſt receſſes, and even beneath their immediate ſubſoil, for this important article of manure.

Mr Dempſter hath ſold from the bottom of this moſs, marl to the extent of upwards of 12,000l. Sterling, or at the rate of 1000l. *per annum*, ever ſince the period it was drained, which is about twelve years ago: and the quantity that remains is yet very great.

The immenſity of time that I apprehend it would take to form ſo vaſt a collection of ſuch minute ſhell animals is beyond our conception, if we might be permitted to judge from natural cauſes and effects.

This valley, when it ceaſed to be a lake, from circumſtances now to us incomprehenſible, unleſs the vaſt accumulation of ſhells can be deemed a ſufficient cauſe, ſeems to have acquired a ſurface fit for the production of trees: for all the under layers of the moſs, next to the marl, are compoſed of roots, ſtems and branches of alder, birch, hazel (with the nuts of this laſt tree externally entire), and ſome oaks of conſiderable ſize.

It hath been ſuppoſed poſſible that this collection of trees may have been floated from the higher grounds; but it is not probable that all theſe trees could be depoſited in this manner, as there is no appearance of any rivulet having ever run into the valley. It may rather be preſumed that the ſediment of water, percolating from the adjacent grounds, may have formed above the marl a ſoil proper for the growth of trees.

From a wood the valley muſt have been transformed into a peat bog or moſs, probably by a ſtagnation of water which would naturally occaſion the deſtruction of the trees and the growth of aquatic plants, which, in ſuch ſituations, accumulate and never fall into a ſtate of total decompoſition. The peat matter is found about ſix feet thick above the marl, and at the time of the drainage its ſurface was covered over with heath.

By drainage and the conſequent alteration of the nature of the ſoil, the heath has been entirely obliterated, and the moſs, even at the ſurface, formed into a fine light mould, and covered with graſs, coarſe indeed in general; but where it hath been gravelled for a road, it is not unworthy of notice, that it is ſwarded at the ſides with the fineſt paſture graſſes and clovers: Couch graſs or twitch *(triticum repens)* was there alſo particularly obſervable.

This moſs hath been drained by one deep cut through the middle

middle of it, and through a ſand bank of the depth of thirty feet which obſtructed the iſſue of the water. The drainage, however, having been intended for the purpoſe only of obtaining the marl, no artificial general improvement of the ſurface of the ground has yet taken place; but by every appearance, when it ſhall be done, the crops afforded will be uncommonly luxuriant, from the decompoſed nature of the moſs, cauſed by its being ſo long in a drained ſtate. Mr Dempſter hath encloſed, levelled and dug over with the ſpade about ſix acres of it, which he means to ſow with graſs ſeeds next ſpring, without any corn crop.

Here are obſervable ſome holes which had been dug to the bottom of the moſs, containing ſtagnated water, but now almoſt filled up again, to the level of the general ſurface, by bog moſs or fog *(ſphagnum paluſtre)* not yet ſolid; a plain example of the quick reproduction of peat matter by the growth of vegetables of the moſs or *muſci* tribe.

It is alſo to be remarked, that the peat earth at the bottom of this moſs, which appears to have a ſmall mixture of clay, is very ſolid, and, when cut into peats and dried, makes excellent fuel; and Mr Dempſter obſerves that firm peats of this ſort, and particularly what is found on ſome of the Highland grounds of Scotland is very little inferior to coal. He burns ſuch peats commonly himſelf, and has ſold many hundred pounds worth to his neighbours from this moſs. Their aſhes alſo are valuable for manure, and, by ſlow and confined combuſtion, may be produced from the peat in conſiderable quantity.

The moſs of Dunnichen in the pariſh of the ſame name, now partly under culture, is ſituated near four hundred feet above the level of the ſea in a ſmall valley kept wet, like that of Reſteneth, by a copious ſpring of water, and alſo by ſurface waters deſcending in rainy ſeaſons from the higher grounds.

It conſiſted of fifty-nine acres, moſtly of peat ſoil, ſhallow at the margin, but deepening to fifteen feet towards the middle. The drainage of it, which was accompliſhed forty years ago, at the expence of 50l., was originally intended merely for the purpoſe of procuring, more eaſily, peats for fuel, of which the country ſtood in great need. Beneath the peat ſoil was found, on cutting a deep level, a layer of ſand mixed with a little mud, ſix feet thick, and, immediately under the ſand, in ſome places, beds of marl, mixed, however, conſiderably with ſand.

On the ſubject of marl as connected with moſs, it may not be improper to obſerve, that though the common practice of ſearching for marl is by the boring irons uſed in trying for coal and other hard mineral ſubſtances, yet Mr Dempſter very judiciouſly adviſes rather to make uſe of a long wooden pole for this

this purpoſe, with an iron auger fixed to its end. This makes the operation of boring for marl both cheap and eaſy. A pole of twenty-five feet, he thinks, will, in general, be of ſufficient length. If the moſs be found to be deeper than this, it is eaſy to join another pole to the firſt, or to obtain a new one of a greater length.

Shell marl is found in the bottom of the generality of lakes, and of meadows and moſſes which have once been lakes, throughout Great Britain and Ireland. It is the remains of myriads of thoſe ſorts of ſmall teſtaceous animals which commonly inhabit pools of water, and have lived and died in thoſe ſituations.

Some of thoſe ſhells are univalves, (generally *Helix*, *animal Limax*, Lin.) others are bivalves, (generally *Tellina*, *animal Tethys*, Lin.) and are frequently very entire when taken up; but after a ſhort expoſure to the atmoſphere, they crumble into a fine whitiſh powder which effervefces with acids, and is, in fact, no way different from powdered limeſtone. It is commonly more pure from foreign and uſeleſs ingredients than moſt limeſtones. Some moſs marl, examined by Dr Coventry, Profeſſor of Agriculture at Edinburgh, was found to contain 84 *per cent.* of pure chalk or carbonate of lime, which is more than lime generally poſſeſſes, and the refuſe of the marl was chiefly peaty ſubſtance, which makes the refuſe of ſuch marl of more uſe as a manure, than that of limeſtone, which is generally ſand or clay.

Shell marl may be converted into quicklime by burning. Its ſolution changes vegetable colours to green, and it poſſeſſes all the other properties of quicklime, and, as ſuch, is uſed for building in many places of England.

De Pagès, in his travels, mentions that the inhabitants of the South Banks of the Miſſiſſippi make oyſter ſhells ſerve all the purpoſes of limeſtone. And lands that receive manure from towns where much ſhell-fiſh is uſed, or that have ſhells in their ſoil, naturally, or by being brought to them from a ſhelly ſea ſhore, ſtand in no need of lime for their culture, and are not at all benefited by it.

Some naturaliſts, indeed, believe that all limeſtones, marbles, and other maſſes of calcareous ſubſtances, are derived from the remains of animals, and conſolidated either in conſequence of fuſion by heat, or ſolution in water; and ſome of the fineſt limeſtones and marbles ſhow, unequivocally, that they are a congeries of ſhells of the ocean. Beds of theſe materials are frequently found near the ſummits of mountains, in which the ſhells that compoſe them can be diſtinctly traced and enumerated by the naturaliſt.

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As a manure, ſhell marl uncalcined is therefore to be uſed as lime; but in that ſtate, it is not ſo minutely diviſible, nor ſo ſoluble in water, and of courſe more tardy in its operation; of conſequence, however, it remains much longer in the ſoil than quicklime. On the comparative value of ſhell marl and lime, Mr Lummis, in an eſſay quoted in Maxwell's Huſbandry, remarks, 'Notwithſtanding that lime is ſo very good manure, yet I prefer marl to it; becauſe, laſting five times as long, it is in the end much cheaper, although ſometimes it is more chargeable at firſt than the other.' Likewiſe, it is obvious that the quantity of calcareous matter in a boll of ſhell marl is more than double that in a boll of powdered quicklime. The price ought therefore to be more than double.

When Dunnichen Moſs was drained, it muſt have been covered with heath. The heath-turf, and the remnant of the ſtems and floriferous parts of the heath plants, are yet found every where on the ſurface. It had afterwards, however, from being long drained, acquired a ſward of coarſe graſs. Beneath, there are found birch and alder trees, and large oak roots, fixed in the ſand, with the remains of muſci, ruſhes, ſedges, and flags. Before the improvement of the ſurface was firſt conceived, it had been cut every where into deep pits for fuel. The levelling and digging of the ſurface of that part of it now improved, therefore, became the firſt neceſſary operation. It was all dug over and levelled with the ſpade, and diviſion-furrows, 30 feet diſtance, were made, down to the ſand, for carrying the water into the main drains. Theſe operations, by reaſon of its inequality of ſurface, coſt 4l. per acre, amounting to about 69l. for digging and levelling near ſixteen acres, in ſummer 1800. In ſpring 1801, theſe grounds were ſown with early oats, except a quarter of an acre planted with yams. The yams had dung adminiſtered to them; and though their haulms were cut off, after they had ſprung up, by a froſt, that did not affect the potatoes in the higher grounds, yet they grew up again, and a crop was produced more weighty by double than on any of Mr Dempſter's beſt fields that ſeaſon. The oats, indeed, which received no manure whatever, were too rank, and therefore lodged. The produce was ſixty bolls Linlithgow meaſure, eſtimated at 15s. per boll; amount L. 45 0 0
The yams amounted to 12 bolls of 20 ſtones Dutch weight each, at 5s. per boll - - 3 0 0

L. 48 0 0

Deduct the expence of ſeed, and the labour of harrowing - - - - 14 0 0

Gain on the firſt year's produce - L 34 0 0

For the ſecond year's cropping, the moſs carried a plough and horſes, even on the places that had been hollowed by pits. It was ſown with early oats, except one acre with flax. The whole was laid down with graſs ſeeds. Though the produce of this crop of oats has not yet been aſcertained, it is preſumed it will be more than laſt year. It ſhall, however, be here put down the ſame as it was aſcertained to be laſt crop, viz.

60 bolls at 15s. - - -	L.	45	0 0
Lint - - - -		15	8 6
	L.	60	8 6
Deduct the expence of ſeed and labour -		25	8 0
Gain on ſecond year's produce - -	L.	35	0 6
Add gain on the the firſt year's produce -		34	0 0
	L.	69	0 6

From this ſtatement, it is obvious that an yearly rent of above 30l. is, by the improvement of ſixteen acres of this otherwiſe uſeleſs piece of moſs ground, added to the produce of the eſtate in future; the two firſt years crops being ſufficient to repay the expences incurred in improving it.

It is to be remarked, that the laſt crop of oats was ſo ſtrong, as to deſtroy partly the ſown graſs. This may be avoided, by ſowing the ground, in future, with graſs ſeeds in April or May, without a corn crop. Some patches alſo of the moſs that had been hollowed for fuel, and levelled with coarſe peat turf, ſeem to have had but a thin crop. That loſs might have been avoided, probably, if peat aſhes had been mixed with the ſoil on the ſurface, or a top dreſſing, of an inch thick, of ſand or earth had been given it, or perhaps by heavy rolling alone. Nothing ſeems neceſſary farther for rendering a peat bog, that has been ſo long drained as this, a better or more productive ſoil. The crop of graſs on it at preſent is moſt luxuriant; indeed, it is ſo beyond belief; but it is partly fine natural graſs, the ſown graſſes having been in ſome places deſtroyed by the over luxuriance of the crop. It remains doubtful to Mr Dempſter, whether, from its appearance of producing ſo great quantities of good graſs, he will let it remain for paſture, or admit it into a due rotation of crops, as part of his farm.

Mr Dempſter remarks, that the cultivation of the moſſes of Scotland cannot fail to contribute greatly to the fertility and richneſs of the kingdom; and that it ſeems to be one of the ſafeſt ſpeculations in which a proprietor or tenant can employ his money, more eſpecially ſince experience has proved that the mere act of draining moſſes is the principal expence attending their

their improvement; for while lime or other calcareous manures were underſtood to be neceſſary, the diſtance of many moſſes, from theſe articles, as well as the expence of purchaſing them, might naturally deter prudent people from the undertaking.

As to the growth of trees on drained moſſes, Mr Dempſter obſerves, that on the dry parts of the moſs of Reſteneth, the Scotiſh firs, the ſeeds of which had been blown from ſome neighbouring plantations of that wood, took root, and grew very kindly, though they have ſince been deſtroyed by the paſturing of cattle in the moſs, after attaining the height of two or three feet.—*Oct.* 1802.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On Cheviot Sheep.

SIR,

BEING in the conſtant habit of reading your valuable publication, from which much uſeful information may be obtained, and from which it may be expected the public will derive both great and beneficial effects, I cannot help offering you ſome obſervations on the letter from a farmer in one of the northern counties of England, dated the 4th of October laſt, inſerted in the fourth number of your third volume. That there was not any Cheviot ſheep brought to the teſt at the laſt Camptown ſhew, was a matter of deep regret to the members of the Cheviot Society; not only as it afforded an opportunity of attributing it to cauſes prejudicial to their breed of ſheep, but alſo as it deprived them of giving a public proof of the goodneſs of the breed. It aroſe from circumſtances purely accidental, but well underſtood in that part of the country; and I am confident, that thoſe who are at all acquainted with the circumſtances alluded to, will not ſuſpect that it was owing to any apprehenſion that the Cheviot ſheep could not ſtand in competition with the black-faced, or from any fear of diſgrace from the South Down, or even the new Leiceſter breeds. Repeated experiments have completely eſtabliſhed the ſuperiority of the Cheviot breed over the Foreſt, and all other kinds in highland ſituations; and it may be admitted, as a proof of this aſſertion, that the demand for Cheviot ſheep to other Highland diſtricts, has increaſed every year ſince they were firſt introduced; and the demand for them this laſt, as well as the preceding year, was ſo great, that it could not be ſupplied. The idea, that Cheviot ſheep will not feed at an early age, (ſeemingly adopted by your correſpondent), and propagated by ſome popular writers, to the prejudice of that valuable breed of ſheep, repeated experiments have proved ill-

founded. But ſhould that gentleman, or any other advocates of that opinion, wiſh to have a public proof, there are breeders of that ſtock who, whenever called on, will not ſhrink from making the trial. I am, &c.

A Cheviot Breeder.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the nature and management of the ſhort ſheep; with remarks on the difference between them and the Cheviot breed.

SIR,

OF all the animals which this country produces, none is of more public utility, or private advantage than the ſheep. Conſidering its mountainous range, the coarſeneſs, and otherwiſe uſeleſsneſs of the paſture on which it feeds; and the little expence neceſſary in managing, and keeping up a ſtock, when compared with its real value, it may ſurely be reckoned the moſt valuable animal that theſe kingdoms can boaſt of.

Nature has very much diverſified the ſoil of this country, and has alſo ſo varied the properties of this animal, that each kind may be brought to a ſtate of the higheſt perfection, in its reſpective ſoil, that the ſpecies is capable of attaining to; and the greateſt difficulty of management ſeems to be in ſtocking the ſoil with that particular kind which it can bring to, and keep at, the higheſt ſtate of perfection.

I am well aware of the ridicule that will be thrown upon me, and the impolicy with which I will be charged, for eſpouſing the intereſts of that kind of ſheep, which the prevailing taſte of the times in general, and ſo many able ſtoremaſters in particular, have, as it were, combined to extirpate: but whatever becomes popular, the bulk of mankind is often forward in adopting, and years, at no great diſtance to come, will prove the fallacy of their too haſty meaſures, and the miſtakes of their immature proceedings. Such is the rage for ameliorating the quality of wool (for another property the animal has not) that a purchaſe is annually made of Cheviot rams for croſſing the ancient, or Foreſt breed *; but

* The Foreſt Breed, Linton Breed, or Short Sheep, are all different appellations of one kind. They are called the Foreſt Breed, from their being found in great plenty and perfection in the county of the Foreſt—the Linton Breed from the diſtrict around, and a weekly market held there in July, which is chiefly compoſed of that kind; and the Short Sheep, to diſtinguiſh them from the Cheviot Breed, that is much longer in the body.

but it is not poſſible, conſidering the nature of the animal, ſoil and climate, that they can ever have a ſtock equal in healthineſs, and hardineſs, to that they are now reſolved on the deſtruction of. I pointedly aſſert, that to lay the foreſt breed upon a farm where the ſoil is dry, and the expoſure warm, argues as much ignorance in farming, as laying the Cheviot kind upon a high, wet, ſtormy paſture, indicates imprudence; for it is abſolutely certain, (though the current report, and opinion of the times ſays otherwiſe), that the Cheviot breed neither will, nor can feed upon ſuch coarſe paſture as the Foreſt breed. The Cheviot breed is naturally more luxurious, more indolent, and conſequently more tender and delicate, than the other, and either taſtes very ſparingly of, or altogether rejects what the other voluntarily chooſes, and delights to feed on. The Cheviot kind, laid upon a proper ſoil, will, no doubt, feed to a greater weight than the foreſt breed, upon the moſt ſuitable ſoil that can be found; yet give them both an equal chance in the rearing, and after management upon a cold, wet, and ſomewhat ſtormy farm, (and many of our highland farms are of this deſcription), and the ſhort ſheep will be conſiderably heavier. I ſpeak not this from prejudice; it comes daily under my obſervation, and has for a courſe of years been exemplified in a fair and complete trial.

Certain domeſtic conſiderations make it imprudent at this time to ſay where, and how the experiment was made: but perhaps I may explain the proceſs of management more preciſely, whenever theſe conſiderations are no more. The reſults of my obſervations are theſe: The Cheviot breed are remarkably fond of paſturing on ſoft tathy places, but have an unconquerable averſion to feeding upon ſtrong coarſe meat,—they are very indolent, and, when ſnow is upon the ground, their utmoſt exertion is to occupy ſuch places as have been broken by the natives,—they ſhrink diſpirited from the ſleety blaſts of ſpring, while the ſhort ſheep ſet out with great activity for the moſſes, where they gather ſuch clean and wholeſome quick meat as ſoon re-invigorates their exhauſted ſtrength. In ſhort, the ſoil being incapable of carrying the animal to that perfection and ſtrength its component parts require, its growth is limited to the efficiency of the ſoil, or rather to their partial and unequal way of paſturing it.

I am no advocate for the ſhort ſheep farther than continuing them upon farms, where it would be improper to introduce the Cheviot breed; and, though the ſtrenuous advocates for the latter contend, that they will anſwer upon almoſt any ſoil in Scotland, yet the practical farmer, who has tried the experiment, knows the contrary. They may as well alledge, that the weakly

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and ſlender ſtructure of the butterfly, is as well calculated to ſtand the froſts and ſeverities of winter, as the hardy Moor Cock, becauſe they are both to be ſeen on our mountains in the ſummer months. The diſparity is not ſo great in the one caſe, as in the other, but ſtill there is a great difference.

I come now to make a few obſervations on the nature and management of ſhort ſheep. The conſtitution of ſheep in general is congenial to, or rather formed from the qualities of the ſoils on wh ch they feed. If the ſoil be graſſy and ſoft, with little proportion of coarſe meat intermixed, it produces a ſheep conſiderably large, but of a ſoft, unweildy conſtitution, eſpecially at an advanced age. If the ſoil be heathy, and dry with little tathy paſture, the ſtock will be ſmall and hardy; the hogs perhaps liable to the *ſickneſs*. Hence it is evident, that the ſtoremaſter ought to be as complete a judge of the ſoil, as of the properties of the animal he intends to ſtock it with. He ſhould firſt conſider whether it is beſt adapted for feeding, or breeding; or whether it be of ſuch a nature as will warrant him to make the article of wool, a diſtinct conſideration; for wool as certainly partakes of the quality of the ſoil, as water receives a tincture from the land through which it flows. Wool Staplers, however, make little difference in the general price of ſhort wool; and therefore I think the ameliorating this article, not worth the farmer's diſtinct conſideration, eſpecially as he muſt forego advantages more important. His attention, then, is directed between breeding and feeding. Some farms indeed will anſwer both plans indifferently, but they will excell in neither; and, though it is practicable to raiſe a ſtock, ſufficiently ſtrong to ſtruggle with the ſeverities of winter, upon a farm of any of theſe deſcriptions, yet one for breeding has always the advantage, in point of healthineſs; *ſickneſs* among the hogs excepted. If a farmer then purſue this plan, independent of every other conſideration, he will raiſe his ſtock to the greateſt degree of ſtrength, beauty, healthineſs, and vigour, to which the ſpecies is capable of being carried; while, at the ſame time, he will augment the quantity of his wool, (though it may become worſe in quality,) the pile being thicker, longer, and conſequently heavier.

The lambs from which a ſtock is to be raiſed, ſhould have the following qualities: They ſhould be ſtrong and well made, the face black, but not of a jet black, as this is apt to throw the offſpring into ſpots; but when it is faintly intermixed with a dark white, it may be conſidered as the true foreſt breed. Faces that are clean white, or of a dun colour, are by all means to be avoided; the former being allied either to the Cheviot breed, or

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to the old Scotch * kind, the latter having a tendency to deteriorate the breed beyond that any can conceive. The greater the ſimilarity in colour betwixt the face and legs, the truer is the kind, let it be of what deſcription it will. The forehead ſhould be rough, the horns ſhould be well turned, and the ribs arched; and indeed the horns and ribs naturally bend into the ſame poſition.

Much attention cannot be paid to the wool in a breeding ſtock. To have the ſheep equally clothed is a principal article, as the wool is apt to turn ſhort upon the ſhoulder, an imperfection to be guarded againſt; as it announces that ſuch individuals and their offſpring will degenerate into long-bodied ſmall fore-quartered animals; and inclines me to think that this is their form in an undomeſticated ſtate, as it requires care and attention to keep them from reverting to it.

But as it is principally from the ram that a ſtock receives its general mould and ſhape, the ſelection of a right kind is far from being unimportant. The qualities of a good ram are, Long and well-turned horns, a long black face, fore-head rough and ſlightly tinged with brown, cheſt ſtraight and long, noſe long and noſtrils wide. When the noſe is ſhort, and the noſtrils ſtrait, it is a certain ſign of a dwarf, and when the face is a bare jet ſpreading directly to the fleece, it indicates that the diſtant poſterity will be liable to adventitious ſpots.

A head thus exactly filled rarely fails of having a carcaſe every way proportional, as the general ſpread of the head is indicative of the general mould of the whole ſyſtem; the properties of which ſhould be, The fore-quarters deep and heavy over the ſhoulders, the neck ſhould bend upwards a little, ſhould be well clothed with wool, cloſe to the horns and cheek; the back ſhould be ſtraight; the ſhoulder a little higher than the back; the bend of the ribs wide; wide above the ears, which is a genuine mark of a true ſhort ſheep; and free from grey hairs in the tail.

If a farmer wiſhes to keep the foreſt breed entire, wool muſt not be even a ſubordinate conſideration. I would regard it only in ſo far as it teſtifies the purity of the breed; for a ſingle croſs with Cheviot rams, will do infinitely more for ameliorating this article than the moſt ſkilful management for a long courſe of years. I ſhall only obſerve, that the wool ſhould be thicker and cloſer in the pile on

* This alliance has been formed at a very remote period; but when a ſheep of this deſcription happens among a ſtock, it evidences the blood to be tinctured, and its tendency to throw is inconceivable. For example, a black or ſpotted ewe will have a lamb nothing diſcoloured; its produce again will ſtill be white, but in the fourth or fifth generation its propenſity to throw after its black or ſpotted anceſtor will be invincible, and will continue for a ſeries of years, till the colour change to that of the reſt of the ſtock.

on the male than on the ſtock, equally laid on, and as free from a mixture of grey hairs as poſſible, as they are more congenial to the nature of ſheep than ſpots, and more apt to be communicated to the produce. I am yours, &c. A. S. L.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

The Improved breed of Sheep defended.

SIR,

ALTHOUGH I feel myſelf very incompetent to anſwer your correſpondent Epicurus, in ſuch high-flown epithets as he has made uſe of, I, however, conſider it a duty which I owe to myſelf and my country, to give anſwers to ſuch parts of his remarks as I am able.

Firſt, Reſpecting Mr Brodie of Upper Keith. Although I never ſaw the advertiſement referred to, I cannot help thinking that Mr Brodie has ſhewn true ſpirit and enterpriſe, in giving conſiderable prices for ewes and tups, by way of introducing a moſt *valuable* breed of ſheep into Scotland; as I hope to prove, if not to Epicurus, to all your impartial readers, before I have done with theſe remarks.

I may be wrong informed, but I have it from good authority, that Mr Brodie has in every branch of agriculture acted with uncommon ſpirit, and great exertion. And if it be true, as I have alſo been told, that he has benefited himſelf by thoſe exertions, I have not a doubt but he will benefit himſelf ſtill more by introducing this breed of ſheep, which is perhaps much wanted in Scotland. Now, "if a man deſerves well of his country, who raiſes "two blades of graſs, or two ears of corn, where only one would "grow before;" is he not alſo deſerving of praiſe who produces two pounds of *mutton* where only one was formerly produced? And that this was the caſe with the celebrated Mr Bakewell, who was the firſt ſelector and promoter of this invaluable breed, I believe few will deny, who either are acquainted with that breed, or have taken any pains to inform themſelves of its merits. And, if what I have now ſaid be right, then not only Mr Brodie, but every man, who, in a rational way, endeavours to diſſeminate that breed deſerves well of his country.

But I do not mean to conteſt with Epicurus, the ſuperior taſte or delicacy of the mountain mutton, or the more claret-like colour, or higher *flavour* of the *gravy*. I only wiſh to recommend a kind of mutton ſuited to the vulgar taſte of *a Newcaſtle Coal-heaver*, and adapted to ſupport the exertions of thoſe laborious

rious claſſes, not only of *Coal-heavers*, Keelmen, and Pitmen, about Newcaſtle and elſewhere, but every Miner and Fabricator, from Cornwall ſouthward to Caithneſs northward; a ſet of men, without whoſe induſtry the Epicureans would not be ſo able to indulge their nicer palates with a ſheep bred upon the mountains! extremely uſeful in their way, but not at all calculated for the Champaign parts of Britain. Nor do I believe that I hazard too much, if I ſay that a time will come when the improved breed will occupy all the lower hills in the iſland, as well as the low lands.

I know it to be a fact, that many of the Cheviot Breeders are at preſent croſſing their ſheep with tups from theſe animals, whoſe fleſh is only fit for the digeſtive powers of a *coal-beaver!* and I am diſpoſed to think, that if Epicurus were to happen to taſte ſome of the mutton of theſe ſheep, which have been produced from a croſs with the new Leiceſters, without being previouſly informed, he would not be able to diſcover the *contamination*.

Epicurus muſt permit me to ſay, that the new Leiceſters are very far from being a coarſe grained breed: the old Lincolnſhire breed is certainly ſo, which may have led him wrong. But I am firmly perſuaded, that the mutton of the New Leiceſters is equally as fine grained and *marbled*, as that of any mountain ſheep whatever. Obſerve, I do not pretend to ſay that this mutton is ſo fine flavoured, but I preſume, that the mountain ſheep are indebted to the kind of herbage which they are depaſtured on, and alſo to the age they are kept to, for that particularity. Beſides, I neither know how the farmers in England would be able to pay their much advanced rents at this time, nor how the numerous claſſes of *coal-heavers*, miners, or manufacturers, &c. ſpread through every part of Great Britain, would be ſupplied and ſupported with animal food, were it not for this invaluable breed of ſheep, for which this Iſland is ſo much indebted to the memorable Mr Bakewell: and I rejoice to hear, that the manufacturers about Paiſley and Glaſgow, &c. are now beginning to eat this *odious* mutton, with its *oleaginous* covering! and I have no doubt, but the Aberdeenſhire manufacturers will learn by and bye to eat it: becauſe, as the turnip huſbandry ſpreads northwards, which it neceſſarily will do, theſe ſheep will follow.—Epicurus muſt ſuffer me to inform him, that it not only is the moſt nutritive to theſe laborious claſſes of people, but much cheaper than any other animal food whatever; and for this obvious reaſon, that no other animal food, (if we except bacon) affords ſo much fleſh in proportion to the quantity of bone. And I hope to gratify Epicurus, by informing him, that the fat is frequently cut off from the ſurface of theſe animals,

mals, "but not by the butchers before they bring it to the market, for the purpoſe of making ſoap and candles," but is taken from off the fatteſt parts by theſe ſaid manufacturers, then ſhred and put into dumplings, a moſt nutritive, excellent, and, I am perſuaded, wholeſome diſh, of which I have eaten many a time with great pleaſure, and with a natural, *unvitiated* appetite, produced by hard working. Nay, I can tell him more, that the writer, when hungry from the plough, has frequently dipped *toaſted bread* into the drippings of this *delicious* mutton, whilſt roaſting at the fire, and then eat the bread with pleaſure and avidity! Epicurus muſt allow me to put him right alſo in one other article: Mr Brodie never did breed what is known by the name of houſe-lamb, but by ſome means beſt known to himſelf, had the addreſs to make the ewes of this very breed, which Epicurus has ſo much abuſed, take the tup at a very early ſeaſon, ſo as to bring the earlieſt lambs to the Edinburgh market of any perſon in that vicinity, at that period; and I have been informed, that he ſold theſe lambs, to the amount of one hundred, at twenty ſhillings, or one guinea each; and ſurely a fair price, conſidering it was ſome years back. Now, Epicurus talks of this lamb of Mr Brodie's weighing only two pounds and an half, or three pounds per quarter: I cannot contradict this from any perſonal knowledge of the matter, but cannot help thinking, that neither the butcher who bought theſe lambs from Mr Brodie, nor the families, to whom they were retailed, would have given the butcher ſuch a price, as to afford him a profit on theſe ſmall quarters! Beſides, we know that this kind of ſheep will breed and feed full as heavy a lamb, as the Dorſetſhire ewes; therefore I apprehend, that Epicurus muſt not have been well informed reſpecting this matter. Why Mr Brodie has dropped the breeding and feeding of fat lambs, and taken to rear the ſame kind to old ſheep, is beſt known to himſelf; but no doubt remains with me, that he has done it from motives of prudence; and I truſt that he will profit by the alteration.

I cannot pretend to ſay who firſt ſupplied Edinburgh market with real houſe-lamb; but I can juſtly ſay, that the late Mr John Hunter of the Crookſes, near Coldſtream, more than thirty years ago, ſent into Dorſetſhire for ewes, from which he bred and fed lambs which he ſold to a Deacon *Melliſs* of Edinburgh, a very reputable butcher, (if I am right in the name). Epicurus being, I ſuppoſe, well informed reſpecting houſe-lamb of eight pounds per quarter being ſold for no more than 2s 6d, twenty years ago, I cannot pretend to contradict; but it is very extraordinary, that Mr Hunter did, more than thirty years ago, continue (to my knowledge) to ſupply Mr Melliſs with real Dorſetſhire

ſetſhire lambs, for ſeveral years together! Epicurus's compariſon, between the high prices given for bulls and rams, and *tulip roots*, &c. is too bad to be commented upon! I ſhall only obſerve, that it appears, he has thought more about nice *eating*, than the good of his country; but I cannot ſo eaſily paſs him over when he ſays: "Does the Leiceſter ram, or his *grandſon*, get ſtock, producing wool that can be manufactured into broad cloth?" &c. &c. I muſt take the liberty to tell him, that the wool produced by the *new Leiceſters*, makes more money per *head*, or *acre*, or in any point of view, than the fineſt wool grown by any breed of ſheep in this Iſland, becauſe, although the fine wools are ſold much higher by the pound, the other more than makes it up by weight; and ſurely no one can juſtly blame the breeder for purſuing his intereſt, any more than the manufacturer. It has been long obſerved, that the breeder will always produce that kind of wool which will bring the moſt money, even if half hair. For this reaſon the Lincolnſhire breeder produces the coarſeſt and heavieſt fleeces of any other. Indeed the rich marſhes in that fertile country, are highly favourable to the growth of heavy wool. Nay, it is a well atteſted fact, that formerly many of the Lincolnſhire breeders clipped twelve pounds per fleece, over their whole ſtock! whilſt the average upon the Ryeland ſheep (the fineſt wool in the iſland) is not more than three pounds per fleece, or very little more; the laſt, I am told, is now ſold at about three ſhillings per pound, which is, ſay nine ſhillings per fleece; while the coarſe Lincolnſhire is ſold at one ſhilling, or better, per pound, conſequently makes twelve ſhillings at leaſt, per fleece. Whenever the manufacturer will make it worth the breeder's while to raiſe fine wool, he will ſoon try to do it; but the fact is, that the great advance of late years has been, and is, upon the long wools, grown by theſe very coal-heavers favourite kind, which, although ſo deteſtible to Epicurus, is yet one of the greateſt bleſſings to the labouring part of our Iſland! I need not tell Epicurus now, that the reaſon is owing to there being more wearers of *coarſe* than *fine cloths*, and more eaters of the *coal-heavers* mutton, than the *mountain* mutton, although fed upon *thyme* and *aromatic herbs!* However, I wiſh to carry this no farther, than that the rich certainly have a right to gratify their palates, while ſurely the labouring poor have an equal right to lay out their earnings, on that kind of food which is moſt ſuitable, both to their purſes and palates.

I will, with all my heart, join Epicurus in the praiſes of the native black faced Scotch ſheep, whoſe merits are perhaps not yet ſufficiently appreciated. I have long thought them a moſt valuable breed, and in every reſpect adapted to all the cold expoſed mountainous

mountainous parts of Great Britain. And I cannot help thinking, that a period will arrive, (perhaps not very diſtant) when theſe two breeds, *viz.* the Bakewell or New Leiceſters, and the black-faced, will occupy the greateſt part of the paſturage of theſe iſlands. It is very well known, that the former are now creeping up all the hilly, and even mountainous diſtricts which are not very heathy, whilſt the black-faced are confeſſedly beſt calculated to withſtand the ſeverity of the cold upon the high heathy mountains, where no other ſheep that I am acquainted with can ſubſiſt. —I ſhall ſay nothing about the gods of Iſrael! Gods uſed to drink nectar, we are told, of old.—But in regard to butchers, in Scotland, however they may like or diſlike the improved breed, I cannot pretend to ſay; but in Newcaſtle, Manchester, Leeds, Sheffield, Birmingham, &c. &c. &c. I know the butchers can ſell two joints of this breed for one of any other kind whatever. But after all, I ſuppoſe Epicurus (who certainly carries "the pen of a ready writer,") has had no other view by his remarks than to call forth the obſervations of ſome breeders; and although I am convinced of my own inability, I could not avoid ſaying thus much. But I flatter myſelf, that ſome one more competent to the taſk, will anſwer him more to the purpoſe than I can pretend to. In the mean time, I deſire to ſubſcribe myſelf a conſtant reader, and ſincere well-wiſher to your uſeful Publication,

A Breeder of the Coal-Heavers Mutton.

Remarks by the Conductor.

THE above communication is extremely ſatisfactory, becauſe it bears intrinſic evidence of being compoſed by a maſter in the buſineſs of ſheep-breeding. That the new Leiceſter, or improved breed of ſheep, are more profitable to the farmer in general caſes than many other breeds, may almoſt be received as an axiom; though, as we formerly ſtated, ſome of theſe may afford more gratification to the palate. Perhaps this, in a great meaſure, is owing to the different ages at which Highland bred ſheep, and thoſe of the long-wooled ſort are killed; and no doubt, the exerciſe which the former enjoy in ſearching for food, may contribute to produce more highly flavoured and juicy meat. Be that as it may, ſo long as profit is the object either of breeders or feeders, the beſt kind, in their eye, muſt certainly be the one that will return the moſt money for a given quantity of food. When a corn farmer, as is cuſtomary in Scotland, ſows oats upon clover lea, inſtead of wheat, he is not cenſured, becauſe the latter grain will afford the conſumer better bread.

No;

No; he is induced to ſow oats merely becauſe it is found, that, in general huſbandry, they will yield him moſt advantage. The taſte of the conſumer never comes under his notice; and the ſame views aſſuredly govern the breeders and feeders of ſheep.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Soiling of Horſes and Cattle.

SIR,

THE ſoiling of horſes, in the ſummer months, on green clover and rye-graſs, is a practice which prevails in every corn diſtrict where farm labour is regularly executed. The utility of the practice does not need the ſupport of an argument; for, it is not only economical to the farmer, but ſaves much fatigue to the poor animal: beſides, the quantity of dung thereby gathered is conſiderable.

Reflecting upon the advantages of this practice, it has often occurred to me, that cattle, *i. e.* oxen and cows of all ſorts, might be ſupported and fed in like manner during the whole of the graſs ſeaſon. I know very well that milch cows have, in ſeveral inſtances, been ſo kept; but it is not conſiſtent with my knowledge, that the other deſcriptions of cattle have been fed for the butcher according to this mode, though I judge it to be perfectly practicable. No doubt a conſiderable degree of trouble would neceſſarily attend the meaſure, but this is an objection that may be urged againſt every ſcheme for improvement. It was urged againſt ſummer fallow at its introduction, and is ſtill urged in ſeveral diſtricts againſt the drilling of turnips. If, however, the advantages, which would attend a general ſoiling, exceed the trouble occaſioned thereby, I apprehend the meaſure is not to be combated on this ground.

Let any perſon, for a moment, view a field of graſs depaſtured with cattle, eſpecially if the weather is wet, and he will ſoon be convinced of the great loſs ſuſtained from the feet of the animals, and of the waſte which is made in conſequence of their roaming at large. Perhaps it may be eſtimated, that in general caſes, near one half of the graſs is thereby rendered uſeleſs; at leaſt I am certain, from feeding milch-cows in the houſe, that one half of the extent of land will ſuffice for houſe-feeding, that is required when depaſturing is practiſed. Probably another advantage would follow, which I do not remember of having ſeen noticed. The land, from being covered with graſs, would not only produce an increaſed quantity, but alſo be greatly benefited by the excluſion

ſion of air before the graſs was cut or removed. When depaſtured, it is obvious, that none of theſe things can happen. If the graſs was eaten any thing bare in the beginning of the ſeaſon, its future growth muſt be ſtopped by the drought which uſually prevails in the early part of ſummer; and when the ground is not fully covered with plants, the benefit of the grazing ſyſtem, towards the improvement of land, is only partially experienced.

But the chief benefit of ſoiling may be conſidered as ariſing from the immenſe quantity of fine dung which would thereby be accumulated, and which might be returned to the ground in the ſucceeding ſeaſon, after being properly fermented and prepared. In all corn farms, at leaſt thoſe of clay ſoils, it is a work of great difficulty to rot the ſtraw thereon produced, and much of it is miſapplied, in conſequence of ſuch ſoils being naturally unfit for raiſing green winter-crops. A ſenſe of this has induced many farmers to attempt turnips in ſituations not qualified for raiſing them with profit; but even theſe attempts, though in ſome reſpects uſeful, by converting a part of the ſtraw into dung, do not fully anſwer the intended purpoſe. The ſuperfluity which remains after the turnip ſeaſon is over (and this upon corn farms often exceeds a third of the crop) is ſeldom uſed in a beneficial way. If ſtacked in the yard, it is bleached and dried by the ſun and wind, and when uſed in the next ſeaſon, is found to be unfit for the ſupport of animals, and diveſted of the powers which it originally poſſeſſed. If, however, a numerous ſtock of cattle were kept either in the houſe, or in ſeparate diviſions of the fold-yard, all the ſtraw thraſhed in the ſummer months might be immediately converted into dung, the quality of which would be equal, if not ſuperior, to what is made from turnips conſumed at the ſtake.

To carry on this mode of feeding in a regular way, it would be neceſſary to have a conſiderable quantity of tares ſown at different times, ſo as the interval betwixt the firſt and ſecond crop of clover might be filled up. A ſtack of hay would alſo be neceſſary, in the event of bad weather ſetting in, or circumſtances occurring to prevent a regular ſupply of green food.

From conſidering the time taken to cut and bring home graſs for my farm horſes, I am led to think, that one man and a boy, with a ſingle horſe cart, would be able to ſupply thirty head of ordinary ſized cattle with cut graſs, if the crop was middling good, ſay one that would yield two hundred ſtone of hay per acre, and the diſtance of the field from the home ſtead not exceeding half a mile. If the beaſts were tied to a ſtake, it would require an additional hand to litter and clean them; but I am convinced that in ſmall fold yards, well ſupplied with water, and provided with a ſhade to which the animals might retire in a hot ſunny day,

day, this mode of feeding would be moſt eligibly executed. Perhaps the number put into each yard ſhould not exceed ſix or eight, and they ſhould be as equally matched as poſſible.

In this way, the farmer of clay ſoils might be equally benefited by green crops, as thoſe of a light and gravelly nature, where turnips are generally raiſed. The only difference would be, that they would feed at different ſeaſons, or at the time beſt ſuited to the circumſtances in which they are placed. Dung is the mother of good crops; and it appears that no plan can be deviſed by which a large quantity can be ſo eaſily and cheaply gathered, or by which ſtraw can be ſo effectually rotted and rendered beneficial to the owner.

Thus have I communicated the outlines of a plan which, in my humble opinion, might be executed with advantage. The two chief features of it are—An economical uſe of cattle food, and a great accumulation of dung. According to the ſyſtem of depaſturing, both are neceſſarily neglected; the graſs is trampled down and deſtroyed by the feet of the beaſts, while the dung dropped by them is waſted by the ſun and air, waſhed away by rains, and generally laid on a particular part of the field, where they are in the habit of harbouring. I am yours, &c.

A Rural Economist.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Swediſh Turnip.

Sir,

If the following anecdote, relative to the uſe of this valuable root, is thought worthy of notice in your uſeful repoſitory, you are at liberty to inſert it. I am perfectly ſatisfied of its authenticity.

In winter 1801, you will recollect, the ſtorm of froſt and ſnow ſet in very early, nearly about Martinmas; immediately upon the ſetting in of the ſtorm, a flock of upwards of a dozen of Turkies belonging to a private family in Nidſdale, ceaſed to appear about the houſe, as they were wont to do for their food. They were apprehended to have been ſtolen: In a day or two, ſearch was made for them, when they were found very buſy at feed, upon a ſmall field of Swediſh turnip, not far diſtant from the houſe. Truſting that the ſure guidance of inſtinct would not miſlead the Turkies, they were left to their own diſcretion; they continued to feed upon the turnip through the day, rooſting

roosting over night upon some trees contiguous to the turnip field, and never coming near to the house. At the feasting season of the ensuing Christmas and New-Year's day, a number of them were killed for family entertainments and presents to friends, when they were found full in flesh and delicate in flavour: in short, in all respects in the highest condition, although they had tasted nothing but what they had picked for themselves in the turnip field.

In the company where I obtained this anecdote, from one of the Ladies of the family to whom the Turkies belonged, a Gentleman present was very particular in his inquiries as to the flavour of the fowls; he informed us that the reason of his being so particular was, that long ago he had been invited to a dinner by Sir James Nasmyth of New Posso, where a Turkey was to be served up which had been fed solely upon the common field turnip, but that the turnip flavour of the Turkey when brought to table proved so overcomingly strong, that it was instantly dismissed without being dissected. I am,

Your Constant reader,

C. F.

Tweeddale, Jan. 12, 1803.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the expence attending the making of Thorn hedges, and training them up.

Sir,

The expence of fencing land is imperfectly understood by many people; this induces me to trouble you with some estimates of the charge of inclosing with hedge and ditch, on farms remaining in an open state, which I hope, may afford satisfactory information to your readers.

Suppose a Landlord lets a farm for 19 years, and binds the Tenant to inclose said farm, with ditch and thorn hedge; the Landlord binds himself to pay the Tenant the value of training up those hedges, that are a good fence at the end of the tack—and to make good the agreement, the Tenant sets to work, and inclоses the whole farm the first year.

What may those hedges cost the Tenant, to train up, at the end of the tack, per rood of six ells?

Ditch

Ditch casting, per rood, - -	£0	0	10
Thorns per do. - - -	0	0	5
Two new paillings, during 8 years,	0	2	6
Once scouring, - - -	0	0	4
Four years cleaning, two times a year,	0	0	3
Two years more, say, - -	0	0	1
Once triming, - -	0	0	1
			£0 4 6
Interest on 3s. 4d. for 18 years at 2d. a year, - - -	£0	3	0
Do. or 1s. 2d. for 10 years at 0¼ a year, - - -	0	0	7½
			0 3 7½
			£0 8 1½
One Rood of hedge, nearly occupies one fall of ground, which, at the rate of 40s. per Scots acre, the Tenant pays 3d. per rood of rent.—19 years at 3d.			0 4 9
			£0 12 10

Suppose again, that this farm requires 2000 roods of ditches to inclose it.

The farm	Dr.	Contra	Cr.
To 2000 Roods, at 12s. 10½d per rood.	£1287 10 0	By 2000 Roods of hedges, the rent of the ground paid to the Landlord for 19 years, at 4s. 9d.	£475 0 0
		This may be stated against the farm as a benefit from the inclosing.	
		By balance to be paid by the Landlord	£812 10 0
	£1287 10 0		£1287 10 0

I am yours, &c. H.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On Moſs as a Manure.

SIR,

I have peruſed your valuable publication with much ſatisfaction, and am firmly perſuaded its circulation will diffuſe much uſeful knowledge throughout the Agricultural world. You have in ſome late numbers given us a new diſcovery, relative to the value of moſs for compost. I ſay a *new diſcovery*, becauſe I live in a remote corner of the Iſland where we have many thouſand acres of moſs, unapplied to any other purpoſe than that of feul. Adjacent to theſe moſſes, are as many thouſand acres of good light ſoil, very much adapted to turnip huſbandry. I poſſeſs nearly 300 acres of this kind of ſoil, and about 40 acres of Moſs, wherein there is much variety, viz. the ſoft ſpungy moſs of a dirty yellow colour, *provincially* flow-moſs; the brittle brown moſs full of rotten chips; and the black compact moſs of a denſe quality. Now, having equal acceſs to all theſe, I requeſt ſome of your correſpondents, who have actually made a comparative trial, to ſay, which of theſe kinds of moſs are beſt for converting into manure by an admixture of Farm-yard dung, &c. upon Lord Meadowbanks ſyſtem.—Attention to the above ſimple queſtion, will gratify many of your readers, as well as yours, &c.

R. C.

December 13. 1802.

FOR THE FARMER'S MAGAZINE.

Queries on Drill Huſbandry, &c.

WHAT are the advantages, and diſadvantages, of the ſyſtem of drill huſbandry for all crops as practiſed in China univerſally, and now introduced pretty generally into ſeveral parts of England?

What is the beſt form of a farmer's cart?

What are the beſt varieties of ſeeds, as ſuited for particular ſoils?

A. S.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On laying land down with graſs ſeeds, and obſervations on houſe Lamb.

SIR,

IT is now well known, that land which has been long in tillage cannot be better improven, or at a cheaper rate, than by laying it into paſture graſs, a few years. This ſyſtem you have earneſtly recommended in the courſe of your publication; for which reaſon, I ſhall only ſay, that you cannot put your readers too often in mind of it, as great numbers ſtill go on in the old beaten track. What I mean by troubling you at this time, is, to ſuggeſt a few hints that may be uſeful to ſuch as are only beginning the grazing buſineſs.

Before graſs ſeeds are ſown, every field ought to be made as clear of root-weeds as poſſible; and ſummer fallow, turnips, or potatoes, are the beſt preparations. If the land is good, after ſummer fallow a very ſlight dunging is ſufficient; a full dreſſing may endanger the graſs, by making the grain crop lodge. It is poſitively neceſſary to have plenty of plants, perhaps 20 lb. of the different kinds of clover, with a buſhel of good clean rye-graſs, may be a proper quantity of ſeeds for an acre. The clovers may be proportioned to ſuit different ſoils. If the grain crop is very thick, early cutting is of great ſervice to the young graſs; very much damage is ſuſtained by ſuch a crop ſtanding a few days longer than is neceſſary. Feeding ſheep on the graſs is better for enriching the land than black cattle; and, perhaps, taking an average of years, fully as profitable.

If the autumn is dry, and a great luxuriance of young graſs appears, it may be eaten a little down before bad weather ſets in; but it muſt not be poached on any account, nor muſt ſheep get on it in winter, though ever ſo dry, for they will deſtroy all the broad clover altogether. It is a very great error to put a full ſtock on graſs during the ſpring months; perhaps a backward ſeaſon ſets in, after ſuch a ſtock has been bought in, and then in place of feeding, they barely ſubſiſt, beſides running the riſk of breaking the fences, to the great trouble and diſappointment of the owner. But when a light ſtock is put to graſs, it is ſure to feed well; and by the month of June the graſs has got ſo far a-head, that it commonly holds out all the ſeaſon, even with a very full ſtock.

Nothing improves graſs land more than *top dreſſing*. If the land has not been limed lately, a good doſe of that very valuable manure will be found highly beneficial, both to the graſs and

after corn crops. If plenty of good earth can be ſpared, from head-lands or otherwiſe, to mix with the lime, ſo much the better; but in the laſt caſe, the beſt method is to give it two coats, becauſe when there is an equal quantity of lime and earth, and a ſufficiency laid on to make a proper liming, the graſs is buried and never gets through; but, if one half is laid on, and time given for the graſs to grow through, then the other half may be laid on with ſafety. Hard froſt in winter, or after the land is dry in ſpring, is the proper time for laying on ſaid compoſt. If it cannot be all done in one ſeaſon, the buſineſs may be reſumed the next, or during as many as the land is in graſs. There are ſome other manures that may be uſed for the above purpoſe; the refuſe of ſoap, or what the ſoap-boilers call ſpent aſhes, is a moſt excellent article; lime rubiſh from old buildings, &c. A field that has been managed after the above manner, and has been paſtured with ſheep, three or four years, may be termed in a high ſtate of cultivation, and will amply repay the poſſeſſor for the expence and trouble he has been at.

But it is likely the above mode may be animadverted upon, by your correſpondent, Epicurus, as tending to raiſe rank and unwholeſome graſſes, which may have a bad effect on mutton, to the great loſs of the noble ſcience of good eating. In your laſt number, this Gentleman quotes a paragraph from the newſpapers, which, he ſuppoſes will hurt the feelings of Mr. Brodie, being a man of modeſty and good ſenſe; but he does not ſeem ſo delicate with another *modeſt* and *ſenſible* man, whoſe ſpeculation on *houſe Lamb* did not ſucceed. I cannot be very poſitive as to the date when Mr Brodie began to feed *early Lamb*, (for I ſhall not call it by any other name,) but I think it is not much leſs than twenty years ſince he commenced dealing in that article; and it is well known, that he continued a great many years to ſell one hundred lambs at as many guineas; but is he to blame, becauſe the public preferred *his little* lamb to that which was larger?—A certain author wrote a book, but after much trouble and expence in publiſhing, he could find no body that would buy it; the conſequence was, he loſt his temper and condemned all the world for want of taſte and diſcernment, when he ſaw people buy and read with avidity, publications that he ſaid had no merit. Perhaps the lamb Epicurus mentions was too fat—had too much of the blubber he talks of. I have heard that one of the then Bailies of Edinburgh bought a quarter of it; but, it was ſuch pure fat that it melted quite away, when it ought to have roaſted; and the ſapient Magiſtrate came back on the fleſher and threatened to proſecute him for the loſs of his dinner,

dinner, if he would not refund the half-crown, given for it, which the fleſher was fain to do, and by that means *real houſe lamb* was knockt up in the Edinburgh market forever, for no body dare call it by that name ever ſince. I cannot think Epicurus has been fortunate in his choice of mutton, as we are not to ſuppoſe, a fat weather hog to be very delicate eating. He ſeems to deſpiſe all kinds of wool but ſuch as are fit to be made into broad cloth, though the other articles he mentions, are equally uſeful. I muſt aſk Epicurus, Are there no comforts except being clothed in broad cloth, and having good mutton? and whether he means to ſay, that there is no pleaſure or enjoyment to be found under a *blanket* or a *petticoat!!* Upon the whole, I am at a loſs to know his motive for writing the ſaid letter. When a man has been fortunate, and riſen to opulence, although it ſhould be by the moſt laudable induſtry and good conduct, it ſometimes excites envy in little minds. Perhaps he has gained little by mentioning names. Where we ſee two, we are ready to make compariſons, and when theſe are made, one of the parties generally ſuffers. I am,

Your conſtant reader,

F.

Eaſt Lothian, 9th March, 1803.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Information requeſted concerning the diſeaſes of domeſtic animals.

SIR,

GIVE me leave, through the channel of your Magazine, which I underſtand is extenſively circulated through the Britiſh iſles, to requeſt information concerning the different diſorders of domeſtic animals, particularly, accounts of the accidents to which farm live ſtock is liable, with a deſcription of ſuch as may have happened under the obſervation of your correſpondents. When I mention that this information is meant for the aſſiſtance of a gentleman who intends to bring forward a regular work upon theſe important matters, I truſt that additional reaſons will be altogether unneceſſary.

I may add, however, that the increaſed and increaſing value of live ſtock of all kinds, renders an attention to the ſubjects pointed out of increaſed importance. If more was known reſpecting the anatomy of animals, and if the hiſtory of diſeaſes and the modes of cure uſed in different places were more correctly aſcer-

tained, we might then attain to ſomething like certainty, as to the beſt and moſt effectual way of managing live ſtock, when attacked by internal diſorders, or when they ſuffered under the effects of external injuries. I am yours, &c.

M. S. G.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On Pit Draining.

SIR,

IF the following account of the ſucceſsful effects of pit draining be deemed worthy of a place in your intereſting Magazine, it is heartily at your ſervice.

UPON entering to the farm I now poſſeſs, ſome years ago, I found it very much injured by ſpouts and ſprings; ſo that, as a ſolid foundation for every future improvement, an extenſive drainage was indiſpenſably neceſſary. Accordingly, this laborious operation was commenced the firſt year of entry, and has been continued ever ſince, more or leſs extenſively, as I found it could be conveniently carried on. In general, the uſual mode of draining was attended with ſucceſs; but ſome particular patches of ſwampy land, which had been left by my predeceſſor in their natural wildneſs, even in the heart of a field, I found perfectly incurable by all my efforts in the ordinary way: for except upon the top of the drain itſelf, the adjacent ſoil ſtill continued as unfit for cultivation as ever. Suſpecting, that though the drains were fully three feet in depth, my want of ſucceſs was owing to not having penetrated to the ſource of the evil; I cauſed the perſon employed in draining to ſink down a pit to the depth of, at leaſt, five feet from the ſurface; but ſtill without the deſired effect. At laſt, almoſt in deſpair of attaining the end I had in view, I left him to his own exertions, and returning ſome time after, in the courſe of the day, had the ſatisfaction to find his perſeverance in digging about a foot and a half deeper, attended with the moſt complete ſucceſs: for he had now penetrated the ſtratum of gravel lying beneath an exceedingly tough and ſtrong clay, from whence the water flowed copiouſly, ſoon filled the pit, and run along the drain. Highly pleaſed with the ſucceſs of the firſt eſſay of the kind I had ever made, I proceeded to dig ſeveral pits, where I thought needful, to a ſimilar depth, and with the ſame favourable iſſue. But a diſagreeable

circumſtance

circumſtance took place, which, in the ardour of ſucceſsful enterprize, I had not taken care to prevent. The ſides of the pits, from the great weight of clay preſſing upon them at the top, ſuddenly gave way, and precipitated the incumbent maſs into the place from whence it had, with much labour, been thrown. I thereby learned the neceſſity of having a ſupply of ſtones ready at hand, to fill up the pits immediately, to prevent the recurrence of ſuch a diſagreeable circumſtance. In this manner I went on, pitting in ſuch intervals of the drains as I thought neceſſary, until the whole was rendered dry and firm as any other part of the field. Perhaps it may be aſked, would not Elkinton's mode of boring have greatly facilitated the buſineſs, and entirely ſuperceded the tedious and expenſive proceſs of pitting? I can only anſwer, that as I had no boring irons, I could not make the experiment. But there is one advantage, which, in my opinion, pitting poſſeſſes over boring, and that is with reſpect to durability. Where the water that iſſues from the aperture made by the borer, continues to flow without intermiſſion, boring, in that caſe, may be preferable, becauſe a leſs expenſive operation; but in ſuch ſoils, as I have had occaſion to practiſe draining in, the ſprings in ſome ſeaſons totally fail, ſo that the ſmall opening made by the borer is liable to be obſtructed by moles, toads, &c.; whereas pitting, if executed in a ſubſtantial manner, will, I have no heſitation in aſſerting, continue in its original perfection for ages. I have now for ſeveral years continued pitting wherever I have failed tapping the ſprings in the ordinary way of draining, and have the ſatisfaction to add, almoſt invariably with ſucceſs. Before I conclude, allow me to ſuggeſt ſome hints that may be of uſe to thoſe, who, having ſmall experience in draining, are deſirous to practiſe it in ſuch a manner as to render it of laſting utility. Expedition, in carrying on the various operations of farming, is in none more neceſſary than in draining. If poſſible, every different part of the proceſs ſhould ſucceed another without delay. And no ſooner has the labourer finiſhed the ſhovelling out the bottom of the drain, than the carts ſhould, if practicable from the ſtate of the weather, be ſet to work in carrying forward the ſtones to fill it up to ſuch a height as that the plough may paſs over without touching them. And laſtly, the ſtones ſhould be covered immediately, with a layer of ſtraw, ruſhes, fern, or any thing of the like nature, to prevent the earth, from mixing amongſt them, and thereby obſtructing the free courſe of the water. By neglecting to attend in time to theſe particulars, I have frequently ſeen ſuch conſequences enſue, as almoſt entirely to fruſtate the intended effect. For, after the drain has received from the ſpade that neat

and ſmooth poliſh on its ſides, preſented to the eye when newly finiſhed, it is very apt to be injured by the influences of the weather. Froſt, rain, or ſnow, produce ſuch effects upon it, as ſcarcely to admit of its being ſo completely rectified, but that ſome of the looſened earth will be falling down among the ſtones when put in, and thereby, in ſome degree, defeating the beneficial purpoſe expected. I will not attempt an apology for theſe minute directions: every practical farmer knows the importance of attending to minutiæ, in all the diverſified round of his uſeful employment: And ſhould what I have now written, which with great diffidence is offered to the public, be deemed worthy of inſpection, I ſhall, perhaps, be emboldened to contribute my mite at ſome future period. Wiſhing ſucceſs to your Magazine, I am yours, &c.

RURICOLA.

NOTE.

OUR correſpondent writes like a man of experience and obſervation; therefore his future favours will be highly acceptable. In draining a field ſome years ago, we reſorted to the method adopted by Ruricola, and found that it anſwered the intended purpoſe moſt completely; ſince that time, we have been keen advocates for pit draining, where circumſtances pointed out that it could be executed with propriety.

N.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Obſervations on the Conſtruction, Hanging, and Faſtening of Gates, with a Plate.

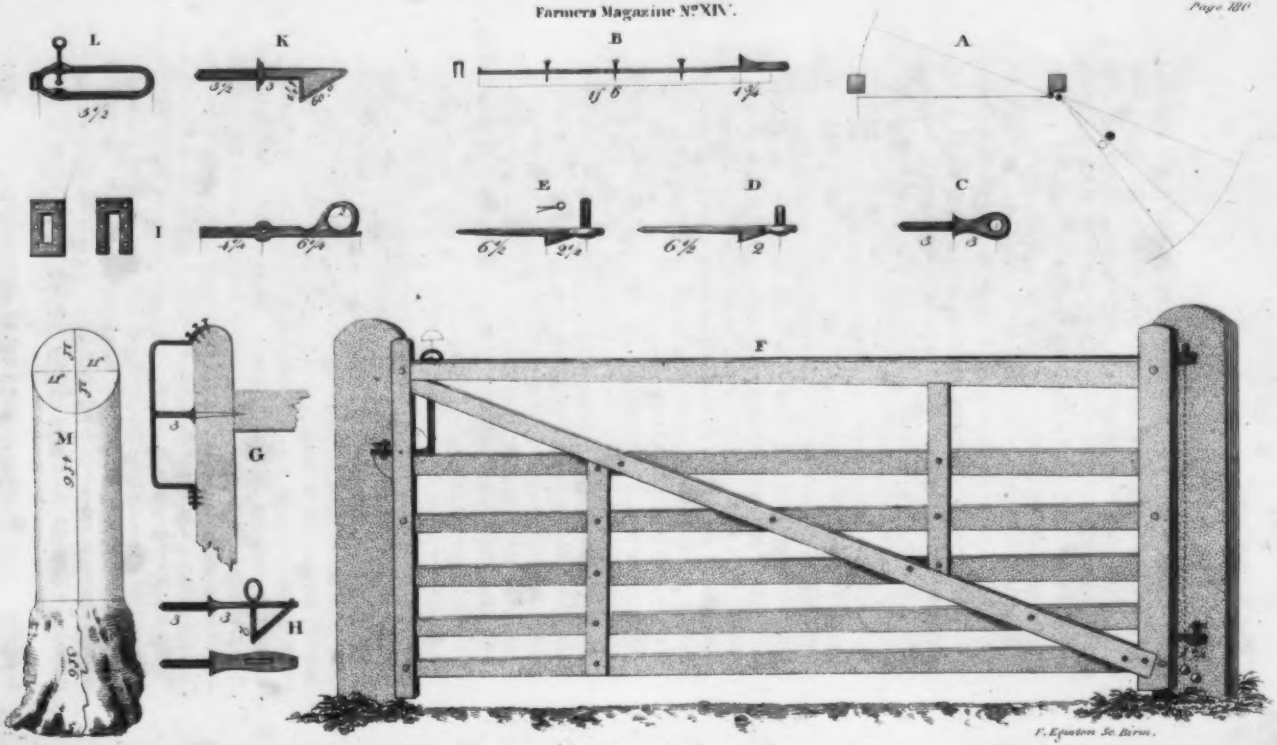
SIR,

I REQUEST your acceptance of a plate, accompanied with ſome explanations, on the ſubject of Gates, which I have endeavoured to adapt to your Magazine. I am yours, &c.

Hatton Grange,
10th *March*, 1803. THOMAS N. PARKER.

A repreſents a ſection of two gate-poſts, with the proper poſition for the hinges of a gate to open one way, ſhewing alſo the line of faſtening, the line of reſt, and line of equilibrium; which two laſt lines are in the ſame vertical plane, both with the hooks, and with the centre of the gate's gravitation; and at about 1-16th

part



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part of a circle within the line of equilibrium, a ſhort poſt is placed to prevent the gate opening too near upon its equilibrium, and thereby becoming liable to be left open.

B is the upper thimble for a common gate, which is leſs expenſive, but by no means ſo good as when the ſtrap extends to the whole length of the gate, which will be deſcribed hereafter: this thimble is twiſted 1-4th of an inch bearing towards the hanging poſt.

C is the lower thimble of a gate proportioned to the upper thimble B, as $1\frac{3}{4}$ inch is to 3 inches, in regard to the diſtance between their centres and ſhoulders reſpectively. Theſe thimbles are adapted for a gate whoſe hinges are 40 inches aſunder, and as 40 is to $1\frac{1}{4}$ the difference in this inſtance, ſo ſhould be any other diſtance from hinge to hinge, to the proportionate difference or extra length of the lower thimble; and the greater the extra length might be made, over and above ſuch proportion, the greater muſt become the velocity of the gate's fall, or tendency towards the line of reſt; until its courſe is arreſted by the faſtening poſt 1-16th part of the circle, or 22° 30′ ſhort of the line of reſt. The lower thimble is let into the gate by a ſcrew of equal ſubſtance throughout its length, or not tapered, in order that the adjuſtment of the thimbles as to the velocity of the gate's fall, may be regulated to ſo great a nicety as half a turn of the ſcrew: and the thimble may either be let into the heel of the gate, or lengthened out by a waſher, as occaſion ſhall require. The poſition of the thimbles, in reſpect to each other, muſt be favoured alſo by the lower thimble, which being placed 1-4th of an inch out of the middle of the heel of the gate, in the contrary direction of the upper thimble, the whole difference, as to the diſtances of the two thimbles from the hanging poſt, will be one half of an inch; and their vertical plane, which is the ſame as that of the lines of reſt and equilibrium, will form an angle with the line of faſtening of 22° 30′, or 1-16th part of a circle; this adjuſtment, in effect, adds 1-12th of an inch to the extra length of the lower thimble, ſo that by a plumb-line, it will be found (when the gate is hung upright, as it always ought to be) that the actual extra length of the lower thimble, or horizontal diſtance of the two centres from each other, will be $1\frac{1}{4}+\frac{1}{12}$ $=1\frac{1}{3}$ inch.

D Is the upper hook.

E is the lower hook, with key hole and cotter, and is half an inch longer from its centre to the ſhoulder than the upper hook, in order to anſwer the thimbles; the actual poſition of the hooks, with reſpect to each other, or rather the horizontal diſtance of two perpendicular lines, one falling from the centre of each of the hooks,

will

will be about 1¼ of an inch only; for if the hooks and thimbles are made to fit properly, each hook will not be more than 1-16th part of an inch ſmaller than its thimble; for as the whole loſs in hanging a gate need not be ſo much as 1-8th of an inch, or not more perhaps than 1-12th (which exactly balances what is gained in the thimbles) the extra length of the lower thimble before it is fixed to the gate, and that of the lower hook before it is driven into the poſt, ought preciſely to accord with the dimenſions expreſſed in the plate, ſuppoſing the diſtance of the two hinges to be 40 inches.

The diameter of the hooks ſhould be about 13-16ths * of an inch, and the perforated parts of the thimbles when made to fit ſuch hooks will be about 14-16ths, that is, 7-8ths of an inch diameter: for pivots of this ſize, the above calculations are ſuited, as to the velocity of a gate's fall; and the thimbles ſhould be made of rounded iron, that the friction may be reduced by the ſmallneſs of the ſurface to be affected thereby †: and when old iron work is made uſe of, wherein a larger ſurface is expoſed to friction, 1-8th, or 1-4th of an inch, as may be ſufficient, added to the common-extra length of the lower thimble, will be the readieſt means of counteracting the extra friction ‡.

F is a complete gate for opening one way, and conſtructed in ſuch a manner, that it ſhall not ſink at the head, as ordinary gates are apt to do. The bars are let into the middle parts of the head and heel, and the lacings are tapered for finiſhing upon a level ſurface with the heel, head, and rail; as is evident in the following directions for the ſawing out the timber, which ſhould be of *kind* oak, not too *tough*, and entirely free from ſap.

The waſte in planing and finiſhing a gate may be allowed for or not, as the gate is deſired to be a little more or leſs ſtrong §.

Heel

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* Theſe dimenſions, minute as they may ſeem, will preſent no difficulty, even to an ordinary workman, with the help of a pair of callipers and a common ſcale.

† See Mr Vince's experiments "On the Motion of Bodies affected by Friction." Vol. LXXV. Philoſophical Tranſactions of the Royal Society of London.

‡ If the heel of a gate be not at right angles with the rail, or the perforated parts of the thimbles be greater than the proportion allowed for, the deficiency in either, or both caſes, muſt be ſupplied by adding to the length of the lower thimble.

§ When the timber is good, it is reduced ſo little by being planed and finiſhed into a gate, that no allowance need be made for the waſte; or, at all events, if the ſawer attends to the dimenſions recommended, the gate will be quite ſtrong enough for its ſize.

	Length.		Greateſt thickneſs.	Tapered to
	Feet.	In.	In. by In.	In. by In.
Heel -	4	4	$4\frac{1}{2}$——$3\frac{1}{2}$	
Head -	4	4	$2\frac{1}{2}$——$2\frac{1}{2}$	
Rail -	9	0	$3\frac{1}{2}$——$3\frac{1}{2}$	$2\frac{1}{2}$——$2\frac{1}{2}$
5 Bars -	9	0	$3\frac{1}{2}$——1	$2\frac{1}{2}$——$\frac{3}{4}$
Diagonal Lacing	9	6	$3\frac{1}{2}$——$1\frac{1}{2}$	$2\frac{1}{2}$——1
Larger Upright Lacing. -	2	8	$3\frac{1}{4}$——$1\frac{1}{4}$	
Smaller ditto	2	8	3 ——$1\frac{1}{4}$	

which will be found to form a well proportioned gate, the whole of the eight parts at the head preſenting to the eye $2\frac{1}{2}$ inches, and ſeven out of the eight parts at the heel, that is, all excepting the heel itſelf, preſent $3\frac{1}{2}$ inches.

The diagonal lacing is fitted into the heel by a ſtrong butment, even with the loweſt bar, and its ſmaller end meets the upper angle at the head, and is confined laterally by two upright lacings; this would keep up the rail, provided the head were not puſhed forward, and that is prevented by an iron ſtrap of equal length to the gate, being attached to, or forming a part of the upper thimble in the firſt inſtance, where it holds the heel of the gate by the ſhoulder of the thimble; it is afterwards ſcrewed to the rail at proper diſtances; and laſtly, ſecures the whole work together, by a ſcrew nut, rounded and let into the front of the gate's head *. By this arrangement, the gate is in fact ſuſpended by the iron ſtrap and rail, inſtead of the heel, which aſſiſts greatly in preventing any ſtrain upon the mortiſes by the gate's own weight, or otherwiſe: I cannot imagine a gate of a more durable conſtruction, and it ſeems particularly well calculated for *Road gates* †. The faſtening F is remarkably eaſy for a horſeman to open, and as difficult, if not impoſſible, to be opened by cattle: the upright wire of the latch is furniſhed with a guard, and the mortiſe of the head of the gate, through which the latch paſſes, is finiſhed with ſheet

* The iron ſtrap is about an inch by a quarter of an inch in ſubſtance, for one half of its length, when it is tapered towards the head of the gate. At the end nearеſt to the thimble, it is made ſtronger for a few inches; and cloſe to the ſhoulder of the thimble, it ſhould be as much as half an inch thick: the edges are chamfered off, and the whole appears to be gradually tapered from the heel to the head of the gate, widening a little round the hole which is left for the upright part of the latch adjoining to the handle.

† In reſpect to a field, through which there is no common road, it is immaterial what ſort of gates may be uſed, ſo that they be made ſecure againſt cattle.

ſheet iron eſcutcheons, like thoſe at I, the faſtening being completed with the catch H, having a button in the place of the ring.

A model of this gate is ſent with the plate, and may be ſeen at the ſhop of Mr Conſtable, Publiſher of the Magazine.

A gate ſuſpended in the manner deſcribed cannot be left open, (excepting in high winds) but will ſhut of itſelf, tho' not with an uniformly accelerated motion, as might be ſuppoſed, its velocity being rather increaſed as it paſſes the middle parts of its ſemicircular courſe, and retarded again as it approaches its line of reſt *.

The effects of wind cannot be counteracted in gates by any good conſtruction of the hinges; for, were a velocity given to a gate's fall equal to the reſiſtance of ſo powerful an agent, the gate would ſoon want repair, from the conſtant violence of its ſhutting, and be ſo much the heavier in the hand of a horſeman: add to which, that when a ſtrong wind blew in the ſame direction as that of the gate's fall, no man on horſeback would be able to withſtand its force; and well conſtructed gates are moſt liable to be acted upon by wind, from their wide extent of ſurface: but if paſſengers are ſo careleſs as to leave gates open under ſuch circumſtances, there will be one ſatisfaction remaining; that is, ſo ſoon as the wind ceaſes, the hinges muſt reſume their property, and the gate faſten itſelf. G is a common peg latch for the head of a gate with a guard to render it ſafer for cattle which might run againſt it when the gate is open; and this forms a very ſecure faſtening, either with or without the guard, when attached to the catch H; but it is thought very inconvenient for horſemen, and particularly ſo for thoſe who are not accuſtomed to it.

H is the catch adapted to the latch G.

I repreſents two ſheet iron eſcutcheons, and a pattern for a ſtrong latch,

* A gate nine feet long is made to riſe ſix inches at the head, from its line of reſt to that of equilibrium, ſubject to certain variations in the intermediate parts of its motion, *viz* as the *verſed ſine* of the angle formed by the gate, with its line of reſt, is to the length of the gate, which is made radius, ſo will be the correſponding riſe of the head of the gate to three inches, at any given angle within the quadrant: and the riſe of the head of the gate afterwards will be--as the *co-ſine* of any given angle formed by the gate with its line of equilibrium, in deſcribing the completement of that angle, is to the length of the gate, or radius, ſo will be the correſponding riſe of the head of the gate to the remaining 3 inches; which *co-ſine* of the angle, formed by the gate with the line of equilibrium, is equal to the *ſine* of the complementary angle, or angle of the gate's progreſs from a radius at right angles to, or equi-diſtant from the lines of reſt and equilibrium, as the gate approaches the line of equilibrium in performing its ſupplementary courſe. This might be better explained by a diagram, had not the plate been arranged more appropriately to this publication; and thoſe who may be deſirous of purſuing this ſubject further, I muſt refer to a pamphlet which will ſhortly be reprinted by Lackington and Co. London, with five or ſix quarto plates.

latch, which is executed in caſt iron * for trial, 3-4ths of an inch thick.

K is the catch belonging to I, to be made alſo of caſt iron, 1 inch thick.

L is a haſp with a peg, of which the ſtud paſſes through the lower hole, but is too large to paſs the upper hole, and therefore cannot be detached from the haſp: this may be made very uſeful in a fold-yard, &c.

M is part of an oak tree, without the bark; and ſince a well conſtructed gate cannot be advantageouſly uſed, without ſuitable poſts, it is neceſſary to make ſome remarks upon the length, and ſubſtance of ſuch as will anſwer the intended purpoſe; and as much expence and trouble may be ſaved, by a proper underſtanding in this reſpect, I ſhall ſubmit the following calculations.

An oak poſt 10 inches ſquare and 8 feet long is ſufficiently ſtrong for the gate F, and it will contain $5\frac{1}{3}$ feet of timber, or exactly 5 feet $6\frac{6}{10}$ inches, the value of which muſt depend upon the quality of the timber; but for ordinary purpoſes, the lower part of a tree of the dimenſions M will make 4 capital poſts for uſe, though their form may not be thought ornamental, and will contain by cuſtomary meaſure $19\frac{1}{3}$ feet, or exactly 19 feet $6\frac{1}{10}$ inches; but the true meaſure of the part of a tree M is 25 feet, or exactly 25 feet $1\frac{5}{10}$ inch: this leaves to the purchaſer of round timber, taking in the ſap, an advantage in the proportion of about 50 to 39, or upwards of 5 to 4.

Eſtimate of gate poſts.

For 4 poſts containing $19\frac{1}{3}$ feet cuſtomery meaſure, of moderately good oak (ſeveral inches of which, in the length towards the root, is of little or no value taken together, ſay at 2s a foot.	£	1	19 s
32 feet of ſawing, ſay		1	0
	£	2	0 0

This being divided by 4 will amount to 10s a poſt; which value, though apparently large, will be ſoon compenſated in avoiding the continual charge of altering and propping inſufficient poſts: beſides, theſe dimenſions exceed the ſize of 10 inches ſquare, even after

* The perfection to which the art of caſting iron is now brought, leads me to think, that a great part, if not the whole of the iron work for gates, may be executed in that cheap and expeditious manner; and it is my intention to make this the ſubject of future experiments.

after allowing for the early decay of the ſap on the round ſide of each poſt; inſomuch, that a part of a tree of ſmaller dimenſions might ſerve for the purpoſe: ſuppoſe the circumference of a part of a tree, without the bark, intended for 4 poſts, were only 5 feet 8 inches (inſtead of 6 feet $3\frac{4}{10}$ inches, which is the circumference anſwering to the diameter of 2 feet) it would contain 16 feet $9\frac{6}{10}$ inches by cuſtomary meaſure, including the ſap, which would be nearly equal in ſtrength to 4 poſts of 10 inches ſquare; for each of ſuch poſts will meaſure in the true way, more than 5 feet, and the 4 poſts M would be reduced 7s in price, or 1s 9d each, leaving their value about 8s 3d a piece.

It would be frivolous to add illuſtrations upon queſtions, to which ſimilar caſes are detailed in every common book on menſuration of ſolids; but I feel it highly neceſſary, to take notice of the outline of theſe facts, which like other parts of the ſubject, are not generally pactiſed upon: and further, ſhould a gate of my recommendation be obſerved to lodge its head upon the ground, I beg to be conſidered, as *accountable only for the gate, and not for the poſt on which it hangs*, unleſs my recommendation in that reſpect alſo, may have been duly attended to.

It muſt be underſtood alſo, that I am eſtimating the value of an oak gate-poſt of a certain ſtrength, and not cavilling about the difference as to the cuſtomary and true meaſure of round timber; for the market price of timber is conſidered as applying to a particular meaſure, and taking into the account the waſte in converting round timber.

I have arranged terms upon which the public may be furniſhed with exact ſpecimens of the gate and iron-work recommended, by application to Mr Samuel Lawrence, Black-Smith, or Mr William Bucknal Joiner, Shifnal, Shropſhire, who will pay immediate attention to letters, poſt paid, containing money to the amount of the order; and any ſurplus of a note will be punctually returned with the goods.

A gate to the pattern F with iron-work complete for opening one way,	£ 1 15 10
Do. do. do. to ſwing,	1 17 4

I have no heſitation in ſaying, that I believe the above goods cannot be matched for the ſame money *; even when other workmen

* The price of the ſet of hangings and faſtenings for a common field gate, viz. B, C, D, E, G, and H is only 8s, and the whole gate and iron-work complete was calculated,

men have the patterns before them, unleſs a great many of a ſort were made together; and there would ſtill be a falling off in finiſhing the work which has been effected by practice, and by means of ſome tools adapted for the purpoſe.

My object is to ſpread the improvement in all directions, and the beſt manner of accompliſhing it, appears to be this: for any perſon who approves of my ſuggeſtions, and who wiſhes to adopt them with the leaſt trouble and expence to himſelf, to procure one complete gate and iron work to open one way, and from that pattern to ſet his own workmen to imitate it, which may eaſily be done, as to all the eſſential points *.

A gate, with all the iron-work complete, weighs about 6 ſcores and 10 pounds, and I have ſo far ſettled the terms of carriage, that any number of them, either together or ſingly, ſhall be delivered at Bridge-north, on the river Severn, 11 miles from Shifnal, for 1s each; or at Gaily Wharf, on the Staffordſhire Canal, for the ſame charge, which may be paid with the amount of any order, if deſired. Shifnal is alſo conveniently ſituated for land carriage, being on the great road between London and Shrewſbury, and conſequently a thoroughfare for the ſtage waggons.

I ſhall now cloſe this ſubject with obſerving, that it is impoſſible to allege a ſtronger proof of the moderate prices at which theſe goods are furniſhed, than to expreſs the difficulty which has been experienced in getting the orders executed; inſomuch, that a ſmall proportion of them have actually been returned: this, however, is not likely to recur, in regard to ſuch orders as may be received during the ſummer months, while long days admit of ſo much more work of this kind to be undertaken, than during the comparatively few hours of *day light* in winter.

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calculated, in the ſame proportion of profit to the workmen; but it does not anſwer to furniſh the iron-work, unleſs a complete gate is alſo ordered, on many accounts; and particularly, as the ignorance or obſtinacy of ſome people, into whoſe hands they have occaſionally fallen, is apt to pervert their uſe; whereas a complete gate ſubſtitutes matter of fact in the place of argument, and by admitting of no miſconception, it has never failed to give entire ſatisfaction, and to do much credit to the workmen who executed it.

* No claim to invention is aſſumed in this paper: Gates are commonly made of oak, hung on hooks and thimbles, and faſtened with latches and catches; but the queſtion is, whether a good method for adjuſting theſe things is generally underſtood, as it certainly has been but rarely practiſed.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Correſpondence between Sir John Sinclair Bart. and George Dempſter Eſq.

SIR,

AT the deſire of my worthy and reſpectable friend, George Dempſter Eſq. I ſend you our correſpondence together, on the enlargement of Farms, with a view of having it inſerted in your valuable Repoſitory. It would give us both much pleaſure to ſee ſo important a queſtion diſcuſſed by ſome of your intelligent correſpondents; as it is impoſſible to throw too much light on ſo intereſting an inquiry, on which the improvement of the country, and the comfort of ſo many of its inhabitants, muſt neceſſarily depend.

I remain, Sir, your very obedient Servant,

London, 30th March, 1803. JOHN SINCLAIR.

No. I.

[Letter from George Dempſter Eſq. to Sir John Sinclair.]

My dear Sir John, *Dunnichen Forfar, 3d March*, 1803.

I RETURN you many thanks for tranſmitting me Mr Watt's Letter *. I was ſorry to ſee by it, that he has retired from buſineſs, and laid his fine inventive genius to reſt. I pray your attention to the ſequel of this letter, which is meant by one who loves and reſpects you, to ſave you from a great deal of trouble, much vexation, and heavy expences; and to make your innumerable body of induſtrious and virtuous tenants progreſſively rich and happy. My late worthy kinſman, poor hard-fated Sir George Ramſay of Bamff, uſed to ſay, after becoming farmer, that he found the ſituation of a farmer very enviable; for if a ſick man wanted advice, he muſt fee a doctor; if you be threatened with a law-ſuit, you muſt fee a lawyer; but no ſooner commence farmer than advice from all quarters pours in upon you *gratis*. This letter affords one among many proofs of the truth as well as pleaſantry of this obſervation; I offer you entirely *gratis*, nay, extremely officiouſly, my advice touching the improvement of your valuable and extenſive eſtates in Caithneſs.

In the firſt place, I begin by telling you, I do not approve of your printed plan for improving your eſtates. My principal objection

* The celebrated engineer, Mr Watt of Birmingham.—Every friend to ſcience will lament his retirement from buſineſs.

objection, in ſo far as regards yourſelf, is the huge expence of the undertaking, to which the fortune of a Duke of Bedford would hardly ſuffice: and in ſo far as regards your tenants, the total change you purpoſe making of them, by converting the little farms they are able to cultivate into large ones, too big by far for their ſkill or capital. Here I pauſe to tell you another ſtory. My friend and neighbour, the late Hary Smith of Smithfield, owned a conſiderable tract of ground, ſituated in one of the higheſt and bleakeſt regions in this country The contagion of improving this eſtate ſeized him. But before undertaking ſo arduous a taſk, it was his good fortune to conſult his friend, John Rutherford of Kinghorn, one of the moſt ſagacious men of his time. Mr Rutherford paid a viſit to the eſtate. He found it divided into very ſmall farms, and occupied by a vaſt number of poor little people. He found ſeveral of them were weavers and tradeſmen, who contrived to maintain themſelves, their wives, and ſwarms of children; and what he admired the moſt, he found them not only inſenſible to the bleakneſs of the climate, and the wetneſs of the ſoil, but fondly attached to this moſt undeſirable ſpot. He wrote to his friend, Mr Smith, in theſe emphatic words. "I have ſeen your eſtate. It is a ſhocking one. Drop "all your new-fangled projects of improving it. Thank God, it "is inhabited by tenants blind to its faults. Preſerve them like "the apple of your eye. They are ineſtimably valuable. At-"tach them ſtill more to you and your eſtate. Give them leaſes "for their lives. Exempt them from all perſonal ſervices. Lend "them money at intereſt to repair their houſes, and to purchaſe "manures. Every one of them will exert themſelves to improve "their little ſpots. When any of them die, their lots will be "eagerly ſought after by their children or neighbours. This is "your moment, and not before, to look for a certain increaſe of "rent. Till then, have patience." This advice was given upwards of 40 years ago. Mr Smith, who then reſided in London, embraced and followed it implicitly. The eſtate was then ſcrimply 3000 merks Scots a-year, or L.160 Sterling. It is now in the poſſeſſion of his nephew, and pays him, I am told, and believe it, at leaſt L. 500 Sterling; and all his little people on it are happy and flouriſhing.

De te Fabula Narratur.

In addition to the above, were you to inſtitute a farming-club at Thurſo, preſide there yourſelf; deſcant on Swediſh turnip, ſown graſs, potatoes, flax, and rotation huſbandry; furniſh a few ſeeds; viſit the tenants' improvements; diſtribute a few honorary premiums among the lads and laſſes; introduce into Thurſo, and its neighbourhood, any coarſe kind of manufacture; Oſnaburghs, sacking, ſail-cloth, cotton, ſuch as ruſtic hands would

work at in the long dreary winter nights, and ſnowy and rainy days; your eſtates are improved; yourſelf and Lady Sinclair adored; and your fine progeny in proſpect of a vaſt income, acquired with no capital but that of their parents and their own beneficence.

I am,

Sir John,

Your moſt obedient humble Servant,

GEORGE DEMPSTER.

No. II.

LETTER FROM SIR JOHN SINCLAIR TO GEORGE DEMPSTER, ESQ.

MY DEAR SIR,

IT always gives me much pleaſure to hear from you, even when we differ in ſentiments; for I am ſure that any opinion you give, comes with the beſt intentions, and is entitled to great reſpect. But in regard to the particular ſubject of your laſt letter, *namely, converting ſmall farms into large ones*, I am perfectly ſatisfied, from the very extenſive inquiries I have been under the neceſſity of making, that it is the baſis of all ſubſtantial improvement, not only becauſe the land is rendered more productive, but alſo becauſe hands are thereby furniſhed for day-labour, for manufactures, and for commerce. Indeed, it is to the enlargement of farms, and the abundance of hands for labour reſulting therefrom, that I attribute the flouriſhing ſtate of England; nor will Scotland ever be able to reach that proportionate height of proſperity to which it is certainly well entitled, unleſs the ſame plan is purſued. This we have experienced in Caithneſs; for if it had not been for the enlargement of farms in Roſs-ſhire and Inverneſs-ſhire, we could not have carried on our improvements to any extent; becauſe, in conſequence of the ſmallneſs of the farms in our country, it was very difficult to get a ſufficient number of farm-ſervants, and ſtill more ſo of day-labourers, though of the latter deſcription we wanted no leſs than 500 from other diſtricts every year. You may rely upon it, that converting the arable land into large farms, and putting them into a proper ſtate of cultivation, is not attended with the expence you imagine, and there is no riſk of their lying ley; for even in Caithneſs we are getting farmers from the ſouth of Scotland and the north of England to take them. In regard to the ſmall farmers, the commons are appropriated for them, where they get land cheap, which they like better than paying a high rent for good land; or they go to the towns and villages, where they ſoon live more comfortably than ever. In proof of this, only read the ſtatiſtical account of Greenock; where you will ſee how much the country was benefited by the change of reſidence of ſeveral inhabitants of Argyle-ſhire,

who

who were compelled, by the extenſion of ſheep-farming, to ſettle either there or in the neighbourhood.

I can aſſure you, that, ſo far from parting with the people on my eſtate, I am taking meaſures for increaſing their number; and will ſoon have the pleaſure of ſending you the engraving of a plan, containing above 2000 Engliſh acres, part of a common which fell to my ſhare, which is to be divided into about 50 different lots, and where a great number of new ſettlers will be provided for.

I ſee clearly, that both of us are ſo much convinced, the one of the practicability, and the other of the impoſſibility of carrying this meaſure into effect, that nothing but experience will ſatisfy either of us, which is right. I ſhall keep a faithful account of the whole operation. It is the greateſt in point of improvement that has hitherto been attempted. In the ſpace of two or three years at fartheſt, we ſhall be able to judge whether it will anſwer or not. However it turns out, I have many thanks to ſend to you for your friendly hints on all occaſions.

Believe me,
my dear Sir,
moſt ſincerely yours,

London, 8th March, 1803. JOHN SINCLAIR.

No. III.

LETTER FROM GEORGE DEMPSTER, ESQ. TO SIR JOHN SINCLAIR.

Dunnichen, Forfar, March 22. 1803.

MY DEAR SIR JOHN,

ISSUE never was better joined by the ableſt ſpecial pleaders of Weſtminſter Hall. It will be *a cauſe celebre*. It would enliven the Farmer's Magazine. What would you think of ſending my ſcrawl, and your very candid and ſenſible reply, to the conductor for that purpoſe, with our names to both. It will at leaſt ſhow the world, that the moſt diametrical oppoſition of ſentiment on one of the moſt important queſtions *in this world*, is not incompatible with friendſhip and affection; and it may, on this account, be of ſome ſervice, by abating the acrimony of political and religious diſputants. For my own ſhare, I have ever thought it is the ſparks from the colliſion of different opinions that has lighted up the blaze of ſcience that illuminates our weſtern, and will, I hope, improve our northern hemiſphere. Your note affords me the firſt hopes that we may enjoy a little longer, and all my time, the bleſſings of the peace our Miniſtry have procured us.

I ſhall be happy to ſee the plan of your Caithneſs common. In return, I may ſend you a new map I am preparing for your

and Lady Sinclair's private uſe, in which I have taken care to lead all the roads from Edinburgh to Caithneſs by the village of Dunnichen, and the habitation of your and her Ladyſhip's faithful humble ſervant,

GEORGE DEMPSTER.

P.S. I cannot conclude entirely without adding my thanks for the agricultural reports. They are my maſters, and almoſt my miſtreſſes, for I take them to bed with me!!

BRANCH II.

REVIEW OF AGRICULTURAL PUBLICATIONS.

The New FARMER'S CALENDAR, *or Monthly Remembrancer, for all kinds of Country Buſineſs, comprehending all the Material Improvements in the New Huſbandry, with the Management of live Stock: By a Farmer and Breeder; fourth Edition.* 554 *pages octavo. London,* Symonds.

WHEN the Conſtitutionaliſts of France attempted to improve the government of that country, the principle which guided their proceedings led them to overturn every exiſting inſtitution, however beneficial, and to enact a new ſyſtem of laws, in direct oppoſition to thoſe of the ancient eſtabliſhment. In like manner, the author of the work now before us, who profeſſes to be a farmer and breeder, without ſufficiently inquiring into the utility of exiſting practices, recommends a complete revolution in our agricultural ſyſtem. He is a keen advocate for what is called the new huſbandry, and eagerly ſupports the abſtract principles upon which it is founded. Whether the work may be claſſed as an original performance, or regarded merely as a compilation, we ſhall not ſtop to inquire. Perhaps it is a mixture of both; but as it contains tenets deſtructive to the proſperity of Britiſh huſbandry, we are in duty bound to examine it with ſome attention.

The work is divided into four principal parts. 1ſt, *A preface*, which appears not to have been included in the former editions. 2dly, *The Farmer's Calendar, or Monthly Remembrancer.* 3dly, *Diſſertations on the moſt important branches of the ſcience and practice of agriculture.* 4thly, *On the nature and management of domeſtic animals*, &c. We ſhall analyze each part, according to the above arrangement, and offer a few remarks.

1. The preface, which is of conſiderable length, contains "Reflections on the exiſting ſtate of agriculture, its merits and demerits;

rits; the cauſes and only effectual remedy of ſcarcity." Theſe reflections are of a deſultory nature; and, from the intermixture of various ſubjects, the preface altogether has a moſt hotchpotch appearance. The author thinks that much good has been done to agriculture by the exertions of public bodies, and that the effectual method of extending improved practice, in every county of the iſland, muſt be through the medium of aſſociations. The defects of our preſent practice are then ſtated; and, after cenſuring the corn laws, and contending for the ſuperiority of the row culture over broad-caſt ſowing, he concludes with a ſketch of a tour through Devonſhire and other counties, which is certainly anomalous with the other matters preſented.

2. The calendar, properly ſo called, contains an epitome of rural labour during each month of the year, and is in a great meaſure borrowed from *Mortimer and Young*, who formerly conveyed information in this manner. In looking over the calendar, a ſaying of an old clergyman occurred to our recollection, and, as it is *apropos*, we ſhall adopt it on the preſent occaſion. This worthy father, who was a keen Calviniſt, in the courſe of a diſpute, replied to his antagoniſt, 'You may preach Arminian doctrine, but you muſt pray like a Calviniſt, or you cannot pray at all.' Juſt ſo it has happened with the author of this work. He ſupports the new huſbandry in theory, but, when he reſorts to practice, his inſtructions are borrowed from the old ſchool. In ſupport of our aſſertion, we ſhall quote a paſſage from p. 272. 'Fallowing,' ſays he, 'is the miſerable ſubſtitute of former times, for manure and the hoe culture, and can no longer be neceſſary on *any* ſoil under the preſent improved ſtate of huſbandry.' This is certainly deciſive doctrine, and, if juſt, rendered any directions for working fallows ſuperfluous; yet, without a bluſh, or ſo much as apologizing in the ſlighteſt manner, our author gives excellent advice reſpecting the management of ſummer fallows, from the time of breaking them up, till they are ſeeded with wheat! Various inconſiſtencies of like nature might be pointed out, but the above is ſufficient.

3. Under the third head are compriſed a number of diſſertations on the moſt important branches of agriculture, viz. *Thoughts on hiring and ſtocking farms—on ſoils and manures—on irrigation—on warping—on draining—on the homeſtead or farm-yard—on vermin—on water—on implements of huſbandry.* Here we muſt remark that the author ſeems unacquainted with thraſhing-machines; at leaſt he does not know a good from a bad one. What he ſtates concerning this valuable implement, is borrowed from the Middleſex, Kent, Lancaſter, and Lincoln ſurveys, and can give a ſtranger but a very imperfect idea of the machines now generally uſed. Further, in his account of im-

plements, Mr Ducket's hand-hoe is mentioned, with which a ſervant of Lord Somerville is ſaid to have hoed one fifth of an acre of barley, drilled at nine inches, in 36 minutes. To this we anſwer, *non credimus.* In fact the hoer, if he performed ſo much, travelled nearly at the rate of four miles in the hour, which is not amiſs in a warm ſummer day, without hoeing at all. If our readers will turn up the firſt volume of the Magazine, p. 253, they will obſerve this hoeing feat decribed by our friend, *the Engliſh Touriſt,* though not in ſuch ſanguine terms. The kind of work that would be performed in ſuch a rapid manner, we leave practical farmers to determine.

The remaining diſſertations are *on fences—on woods and plantations—on tillage,* in which ſummer-fallow is condemned to perpetual baniſhment—*on the row culture—on courſe of crops—on blight, mildew, ſmut,* &c.—*on green crops—on miſcellaneous articles,* ſuch as potatoes, carrots, &c.—*on meadow and paſture.*

4. The laſt part is devoted to the management of domeſtic animals, &c. Here we are better pleaſed with what is communicated, than with the other parts of the work; though what is ſtated ſeems to be in a great meaſure abridged from another treatiſe to be aftewards noticed. Unleſs it be on the topic of working oxen (the hobby of every theoriſt), the author talks in a rational manner; but we muſt do him the juſtice to acknowledge, that he admits the neceſſity of giving corn to oxen, which is an idea, long familiar to us. Indeed, thoſe who pretended to work oxen regularly, without a corn feed, did not know what they were about, and impoſed only upon themſelves, while they were attempting to impoſe upon others. A large ox will barely be kept in order, even when idle, if ſupported only upon ſtraw and a *little* hay; but put him to the yoke, and drive him at a pace required to plough an Engliſh acre per day, the poor animal will be knocked up in a month. We feel much inclined to maintain, that a horſe may be ſupported at leſs expence than an ox under ſimilar circumſtances; that is to ſay, if the quantity and quality of work, performed by each, be rendered equal. At leaſt we know, that if a poor horſe, and a poor ox, are put to paſture in the ſame day, that the horſe will take on fat more readily than the ox.

Having thus given an analyſis of the work, and made ſome paſſing remarks, we proceed to examine a few of the author's opinions upon what may juſtly be viewed as the leading points of rural practice. Theſe, confeſſedly are, the moſt effectual way of cleaning the ground, and the mode in which it ſhould afterwards be cropped. In theſe branches of practice the new and old huſbandry differ widely.

We begin with the ſection on tillage, though it is neceſ-

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ſary to refer to the ſucceeding ſection, both being much blended. In this ſection, ſummer fallow is characterized as the bane of good huſbandry, and the continuance of the practice is attributed to an inexhauſtible fund of prejudice in favour of ancient cuſtoms, and not to the rationality of the thing itſelf. It is even maintained that no arguments, but hypothetical ones, can be adduced by fallowiſts. In ſhort, the very common ſenſe of thoſe who make a ſummer fallow, even upon the ſtrongeſt and wetteſt clays, is called in queſtion by this imperative gentleman.

That ſummer fallow is unneceſſary upon *ſome* ſoils, we have never queſtioned; but that it is unneceſſary upon *all*, we believe few people, acquainted with the variable nature of Britiſh ſoils, and the inconſtancy of the climate, will feel diſpoſed to admit. It is well known that three fourths of this iſland conſiſt of ſtrong loam, clay of different varieties, and Mooriſh or peat-earth ſoils, and that upon few of theſe can turnips, or other fallow crops, be cultivated with advantage. In ſuch ſituations, an abſolute neceſſity ariſes for leaving the land uncropped for a ſeaſon, in order that it may be cleaned during the dry ſummer months, when weeds can only be extirpated, otherwiſe ſuch ſoils would gradually be deteriorated, and at laſt prove ſo unproductive as not to be worth the expence of labour. This ceſſation of cropping for a ſeaſon does not by any means leſſen the farmer's profits, or the ſtock of food in the country; on the contrary, it is the ſure way of increaſing both; for, in the ſucceeding years, or during the rotation that follows, the crops that are gained amply repay the temporary deficiency occaſioned by the fallow proceſs. As for the expence incurred, it is only a year's rent which can be ſtated on that head; for the charge of ploughing and harrowing in ſummer, ſeldom exceeds the amount of what is incurred by forcing a crop when the land is in a foul condition, the real value of labour, at each period, being duly eſtimated.

We have often witneſſed attempts made to clean ſuch ſoils as are mentioned above, by introducing drill-crops; but we can ſafely aver, that in every inſtance that came under our obſervation, the attempt turned out unprofitably to the occupier. Turnips, no doubt, will grow upon them, if highly manured; but the conſequences which follow the removal of the crop, upon all cloſe-bottomed ſoils, ought to deter any farmer from ſuch management. It is only where a breeding ſtock is kept, or with a view to rot the fodder of the farm, that turnips ought to be raiſed upon clay ſoils; and, under theſe circumſtances, it may juſtly be ſaid, that conveniency, and not profit, is the object; at leaſt the latter is only a ſecondary conſideration.

We are aware, that the author of the calendar, in ſtrict conſiſtency with the principles he profeſſes, may urge, that land would never be foul, if the drill or row huſbandry was regularly practiſed; but if this was urged, we would reply, that the row huſbandry is impracticable upon the generality of ſoils, and that ſummer fallow is the alone beſt way for pulveriſing and preparing ſuch for corn crops. Notwithſtanding what is maintained in this treatiſe, we are inclined to believe that ſtrong clays cannot be drilled with the leaſt proſpect of advantage, in an average of ſeaſons; nor do we think, faſhionable as the row culture may be, that the mania has ſeized the poſſeſſors or occupiers of obdurate contentious ſoils. We know it is almoſt phyſically impoſſible to form a drill for beans, upon clays, in the month of March, when the ſeaſon is wet, even when the intervals are from 27 to 30 inches; and that to get them rowed, it is neceſſary to put them in after every third plough. If this be the caſe, when the intervals are ſo wide, what would be the conſequence if they were narrowed to 9, 12, or even 18 inches? The ſeed would neceſſarily be put in, after every firſt or ſecond plough, with a ſmall hand-drill, and the large complicated drilling machines, ſo ſtrenuouſly recommended, would be totally uſeleſs: but this is not all, ſuch ſoils cannot be horſe-hoed, unleſs the intervals are of the greateſt wideneſs, for they turn up, when ſtirred, in ſuch lumps or clods, as would inevitably deſtroy the greateſt part of the young plants. If the intervals were wide, the produce would, of courſe, be proportionally decreaſed, while the quality of the grain produced would, from a continuance of tillering, be materially injured. With beans this does not happen; for the pods being placed upon the middle and under part of the ſtalk, the introduction of air is abſolutely neceſſary to increaſe their number, and to bring the grain to maturity. Wheat, barley, and oats, are differently circumſtanced. With them the grain is placed upon the top; conſequently the introduction of air is leſs required, and, at all events, we are confident, that with equal management, and upon an equality of ſoils, a greater produce will be gained from culmiferous crops upon *clay ſoils*, according to the old huſbandry, than can poſſibly be gained by the introduction of row culture.

The author of the calendar, however, appears to hold different ſentiments, and ſpeaks of the ſtrongeſt and wetteſt clays being advantageouſly tilled, without the aſſiſtance of ſummer fallowing. To theſe aſſertions we beg leave to demur. If a perſon was deſcribing the climate of Jamaica, and, in his deſcription, ſtated that it was intenſely cold, it might with juſtice be maintained, that he was altogether unacquainted with that iſland. In like manner, any one that recommends drilling ſtrong clay, with *all* grains, may, without breach of charity, be ſuppoſed not poſſeſſed

of the fulleſt information. We might have gone farther, and not been in an error; we might have ſtated that he was no farmer who gave ſuch an advice, and had not witneſſed the operations he recommended

Let any perſon reflect, for a moment, on the condition of the greateſt part of land in an average of years, during the months when ſpring ſeeds are ſown. If ſuch have been ploughed in the early part of winter, the bottom, at the time of the ſecond ploughing, is raw and wet, even when the ſurface is dry, and in a workable ſtate. When attempted to be ploughed in the ſpring, the majority of ſoils, at leaſt all thoſe incumbent on a hard or cloſe bottom, turn up tough and waxy; and if a hot ſun prevails for a few days afterwards, the ſurface becomes baked hard like a brick, before the bottom or ſubſoil is free of the ſuperabundant moiſture there accumulated. Under theſe circumſtances, with what propriety can drilling or rowing be attempted, or with what degree of perfection would the ſeveral operations be executed? That the ſouthern diſtricts of England, and even many kindly ſoils in other diſtricts, might ſafely be drilled, we are not at this time intending to deny; but our author makes no diſtinction. He has an uniform *recipe* for every ſoil, and, like the phyſician in the farce, bleeds the weſt ward, and jalaps the eaſt ward, without conſidering whether ſuch preſcriptions are applicable to the patient's ſituation or not.

Our author ſays, p. 274, that 'the fallowiſts have contented themſelves with ſimply aſſerting, that their lands will not do without reſt.' This, to be ſure, is a ſtrange reaſon; but, if ſuch has been urged in defence of fallow, we waſh our hands clean of the aſſertion. What is ſummer fallow, but merely tilling the ground at a proper ſeaſon, and freeing it from weeds at a time when the operation of ploughing and harrowing can only be ſucceſsfully employed? If we had no wet weather, and no winter months, then, to be ſure, conſtant cropping would be practicable, and an extra ſtock of men and horſes would only be neceſſary; but in the preſent ſtate of our climate, (and we know not how it may be meliorated) little or nothing can be done from autumn to the firſt of April, except ploughing the ſtubbles, and putting in the wheat, and early ſpring ſeeds. Even with every degree of attention, theſe neceſſary acts are often executed on clay ſoils, under ſuch unfavourable circumſtances, as to haſten a return of ſummer fallow earlier than could be wiſhed.

It carries, no doubt, a flouriſhing ſound, to maintain, that "the earth is deſtined by nature to an everlaſting round of vegetation;" but there is not much ſenſe in the poſition, when applied to practical huſbandry. Will the earth produce corn crops, unleſs the ſeed is ſown, or can corn be ſown, unleſs the earth is cultivated? The natural vegetation of the earth is aſſuredly very different

different from what man wiſhes, and his conſtant object is to deſtroy the natural, and to ſubſtitute artificial vegetation in its place. Take our author's word for it, ſummer fallow encourages this natural vegetation; for he characteriſes regular periodical fallows as nurſeries, and hot-beds for producing couch. Before he has advanced two pages he, however, contradicts himſelf; for, in p. 279, when ſpeaking of intermixing hoed crops of pulſe with broad-caſt crops of corn (which, at the ſame time, muſt be noticed as a departure from his principles), he ſays, 'It will be underſtood that a ſummer's reſpite is neceſſary at firſt, in order to clear the ſoil of root weeds.' What! clear the ſoil of root weeds by a proceſs which encourages their growth? Again, take a paſſage, p. 354, which, though hoſtile to the author's principles, is in uniſon with ours. 'It ought to be an invariable rule to have all the material tillage of heavy land finiſhed by the end of Auguſt, in order to avoid the diſagreeable dilemma of being caught by the autumnal rains, in which it is abſolutely impoſſible either to work clays to advantage, or to lay them properly to endure the winter.' If this paſſage does not fully corroborate the doctrines maintained in this review, we are much miſtaken. What land can be laid up in the end of Auguſt, unleſs it is the portion devoted to ſummer fallow. All the row culture is finiſhed long before that time, and little or none of the land in crop can be ready for the plough. The matter is clear, and needs no elucidation; therefore we ſhall cloſe this branch of the review with a ſolid and judicious remark offered by the reſpectable author of the Stafford ſurvey, which, in every point, coincides with our ſentiments. That gentleman ſays, 'Fallowing for wheat on cold, wet, or ſtrong lands, and on all ſuch as are unfit for turnips, is abſolutely neceſſary; and he who attempts to manage ſuch land, without fallowing, will have occaſion to repent his miſtake. Mixed ſoils, which are too moiſt for turnips, have a particular propenſity to the production of root-graſſes: Summer fallowing, therefore, becomes indiſpenſably neceſſary; and every attempt to crop without it, for any length of time, on ſuch land, has terminated to the injury of the and, and the loſs of the occupier.'

We come now to the next article on row culture, or what is pompouſly called the new huſbandry, though our author afterwards characteriſes it as a primitive practice, derived from the remoteſt antiquity. To this mode of huſbandry we are not hoſtile, under certain circumſtances, that is, where the ſoil and climate are favourable for executing the ſeveral operations. We apprehend, however, that the chief merit of drilling lies in the regularity with which the ſeed may be ſown, and the equal depth in which it may be depoſited. Having made theſe admiſſions, we cannot go farther in ſupport of a ſyſtem utterly impracticable, under

under the phyſical circumſtances in which Britain is placed. Soil and climate, in a few diſtricts, may render it partially eligible, but we repeat that it can never become generally prevalent.

Mr Tull was aſſuredly the father of this huſbandry in Britain; but it is notorious, that neither he nor any one of his imitators ſerved themſelves by acting up to it. Our author improves upon Tull, for he grants that manure is neceſſary to render the ſyſtem perfect; whereas the other thought that tillage was all in all. An ingenious defence of Mr Tull's hypotheſis is, however, attempted, though the reſult is very queſtionable. Our author reaſons in this manner: 'Manure beſtowed upon land ſown broad-caſt, is barely adequate to the ſupport of the weeds ſuffered to grow upon it; therefore, if the weeds are extirpated, manure may be omitted, and the land will ſtill be as rich for carrying corn crops.' Granting the premiſes, we deny the concluſion, unleſs it is previouſly eſtabliſhed that broad-caſt crops are univerſally foul, and drilled ones perpetually clean; none of which neceſſarily follow. In our opinion, broad-caſt crops ſtand a better chance of being clean at autumn, if the ground has been ſuitably prepared, than drilled ones; for, in the firſt caſe, the cloſeneſs of the crop prevents an under vegetation at the end of the ſeaſon; whereas, if drilled crops do not meet and fill up the intervals, a vegetation of weeds enſues at the end of ſummer, after the hoeing ſeaſon is over, in ſpite of every previous effort. That ſuch will be the reſult, every farmer will bear teſtimony; therefore manure becomes as neceſſary in the one ſyſtem as the other The anecdote of a young farmer, who loſt a Chineſe boar, and found him at laſt in a cover of docks and thiſtles upon his ſummer-fallow, may be true, for all that we know, but, at the ſame time, is altogether irrelevant. He who keeps his fallow in ſuch a miſerable condition at ſeed-time, it may ſafely be preſumed, would not have had his row culture in a leſs ſlovenly ſituation; nay, perhaps, it would have been in a worſe ſtate, ſeeing that ten times more dexterity and attention are required in the laſt, than in the former caſe. Arguing in our author's way, infidels often charge the bad morals of profeſſors to religion itſelf, though it is impoſſible that any ſuch effect ſhould be produced. To practiſe ſummer fallow, is abſtractedly no evidence of bad farming, though it is unqueſtionably true, that many fallowiſts are not good farmers.

We obſerve hypothetical objections to drilling, with replies to each, in imitation of a rejoinder in defence of fallow, made in one of the county ſurveys; but the objections are weak indeed, and do not require a caſuiſt to anſwer them. We have looked into the ſurvey alluded to, and ſee little connexion betwixt the *objections*, and what is there ſtated on the ſubject of drilling. Take

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our author's word for it, the drill-huſbandry is ſpreading moſt rapidly over the kingdom; whereas we firmly believe, that not one acre of a thouſand in cultivation is ſown in this manner, nor do we think, as already ſaid, that the practice can ever become general.

We notice ſeveral extracts from Mr Amos's ingenious publication on the drill-huſbandry; and if that gentleman, or rather Major Cartwright, drilled all his corn crops, and made as much profit from each acre as the reſult of the experiments aſcertains, we frankly declare, that we would not only join in recommending the practice, but even would turn drillers ourſelves. In making this declaration, we by no means call in queſtion the correctneſs of theſe experiments; though, according to our preſent ideas, they cannot be received as concluſive evidence. Mr Amos has drilled ſince 1783, yet it does not appear from his book, that drilling upon all ſoils is recommended. Now, what does this prove? No more, than that drilling under favourable circumſtances, and with great attention, may turn out ſuperior to broad-caſt; but, if the ſyſtem is applicable to every ſoil and ſituation, why perſevere in broad-caſt ſowing? Major Cartwright, perhaps, is influenced by ſentiments ſimilar to our own, and not an advocate for general drilling; but on theſe matters we will endeavour to ſpeak with more preciſion in our next, when Mr Amos's book will come under our examination.

We might have obſerved that the increaſed value of farm-labour renders the reduction of field-work a moſt important object, where it can be ſafely accompliſhed. Thoſe who are in the habit of drilling only a fourth of their lands with beans and turnips, know that the neceſſary expences are conſiderable, and will be able to eſtimate the outlay in the event of every acre under cultivation being managed in like manner. To ſpeak of hand-hoeing at one ſhilling per acre, and hand-weeding the rows at the ſame rate, muſt be viewed as miſtaken ſtatements. It is ſeldom that a crop of turnips will pay rent, and the manure and labour applied, but then the profit is expected from the ſucceeding crops, which are gained at much leſs expence. Extend the ſyſtem, and ſuppoſe that every crop was guided as a firſt one, it will be found that a large portion thereof would be ſwallowed up by the ordinary and extraordinary expences. Beſides, in wet ſeaſons, it is highly probable that a ſmall crop would be got upon clay ſoils. Allowing it practicable to put in the ſeed, all the remaining operations might be effectually prevented, or at leaſt imperfectly executed.

We ſhall juſt notice another ſection, and finiſh the article.

Speaking of the effects of blight and ſmut, the author ſapiently remarks, "That to ſuppoſe corn caught blight or ſmuttineſs from

from the ſeed, is perhaps about as rational as to attribute an accidental cold to a defect in the parental ſeed of the patient; and that to ſteep the ſeed of corn, with a view of preſerving the future crop from ſmut, is a proceeding equally ſage, and entitled to equal ſucceſs, as if a man ſhould apply to Dr Brodum for a medicine to be taken at gun-powder treaſon, in order to cure a cold which may poſſibly attack him the Michaelmas next enſuing.' This is perhaps the ſtrangeſt paragraph that was ever wrote, and is in oppoſition to the experience (in many caſes dearly bought) of every farmer in the kingdom, who has been extenſively concerned in the ſowing of wheat.

The cauſe of ſmut (blight is a different diſorder, though claſſed here with ſmut), is one of theſe ſecrets of nature which probably will not ſoon be diſcovered; but experience, no matter how it was originally gained, teaches farmers that, notwithſtanding the cauſe is beyond their reach, the effects may be prevented by applying ſtrong ſteeps or pickles to the ſeed immediately before it is ſown. If there is one thing, in which we are certain, it is, that applications of this kind, duly adminiſtered, will effectually preſerve wheat from being ſmutted. That they will not prevent blight, we grant; but no perſon, to our knowledge, ever entertained ſuch an idea, unleſs, like our author, they confounded the two diſorders together. Indeed, the whole of this ſection makes a *bizarre* figure; for it is firſt maintained, that ſmutted wheat has no more the power of propagation than ruſted iron; or, in other words, that ſmutted wheat will not produce ſmutted wheat; and then it is contended, 'that to ſow imperfect ſeed, is a practice nearly allied to madneſs.' Aſſuredly ſmutted ſeed is imperfect, *ergo*, &c.

In this ſection it is alſo ſaid, that the potatoe curl is nothing but a blight, and that it does not proceed from the ſeed. Were our author not deſirous to contradict eſtabliſhed opinion, he would not treſpaſs ſo often againſt common ſenſe. Let him plant a few drills of ſound and infected ſeed alternately, and he will ſoon be ſatisfied, that curl proceeds from the ſeed, and from no other cauſe.

In ſome points, the author thinks correctly. He is a friend to leaſes, and does not ſeem inclined to oppreſs the tenantry with arbitrary reſtrictions. His ſentiments on the corn laws are pretty juſt, and ſome good obſervations may be found in the ſection on manures.

Thus, we have examined a work, which, from the title page, ſeems to have acquired ſome celebrity, and are extremely ſorry that our general opinion is unfavourable. Publications of this kind may be highly uſeful when guided by a judicious and diſcriminating hand; but, otherwiſe, they are calculated to do much miſchief,

miſchief, eſpecially to unexperienced agriculturiſts. A plain practical treatiſe upon the operative parts of huſbandry, is a deſideratum in agriculture; but ſuch would require to be executed by a man of ſcience and practice; one who was capable of viewing the management of every kind of ſoil with a comprehenſive eye, and who avoided the phantom of theory, unleſs ſanctioned and ſupported by the unerring teſt of ſucceſsful experience.

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Georgical Eſſays, by A. Hunter, M. D. F. R. S. L. and E. four volumes octavo. Wilſon and Spence, York; Mauman, London; Conſtable, Edinburgh. 1803.

A COLLECTION, ſuch as the one now before us, may be compared to a muſeum or repoſitory, where various articles are ſtored up for public ſervice. People of different taſtes may find commodities calculated to ſupply their reſpective wants, and where ſuch a variety is preſented, none need go away from the repoſitory unſatisfied or unſupplied.

It muſt be confeſſed, that it is very rare that compilations are generally uſeful; nor need this excite wonder, for it requires a moſt judicious mind to ſelect materials, and to ſeparate the chaff from the ſound grain. Fortunately, upon the preſent occaſion, a gentleman of reſpectable character and diſtinguiſhed abilities has undertaken the labouring oar; and we enter with pleaſure upon an examination of the maſs of information he has preſented.

The moſt of our readers will have heard, that a volume of Georgical Eſſays was publiſhed by Dr Hunter about thirty years ago, being a ſelection from papers given in to the York Agricultural Society. That volume is the baſis of the preſent publication. A conſiderable number of the papers are ſelected from agricultural works ſince publiſhed, and we obſerve that not a few are uſhered into public notice for the firſt time.

It can hardly be expected that all the articles of ſuch a numerous collection are of equal celebrity; but we can with truth declare, that, though of different merits, each is appropriate to the deſign of the work. We have little theory but what the acuteſt practice will ſanction, and when ſpeculation is indulged, it is entered upon with diffidence, and executed without preſumption. A true philoſopher lays it down as a primary rule, that the ſecrets of nature are difficult to explore; hence the wiſeſt men are generally

generally readieſt to confeſs the extent of their native ignorance. As knowledge increaſes, they feel more diſpoſed to admit that the road to perfection is difficult, and that caution is neceſſary in every ſtep.

Without indulging ourſelves, however, in abſtract ſentiments, in favour of the author, and of the work he has accompliſhed, we ſhall endeavour to preſent our readers with an analyſis of the firſt volume, leaving the others as a ſource from which enjoyment may be got, when tired and jaded with the examination of more unſatisfactory writers.

This volume is divided into two books, the firſt containing twenty four, and the ſecond ten eſſays; one of which, viz. the fourth, is devoted to a collection of experiments tranſmitted to the author. We ſhall ſtate the ſubject of each eſſay, and make a few remarks where neceſſary.

An appropriate diſſertation on the riſe and progreſs of agriculture introduces the firſt book; but this contains intrinſic evidence of having been wrote a good many years ago, probably at the time of publiſhing the original work; but as we have not the volume beſide us, we cannot charge our recollection with the circumſtance. Eſſay 1ſt is *on the nouriſhment of vegetables.* Dr Hunter ſeems to be of opinion, and we think with juſtice, that oil is the chief food of plants, which is contrary to the theory of Tull, who keenly contended that their food was earth. The Doctor ſtrengthens his argument by appealing to the experience of every farmer, whether vegetables, whoſe ſeeds are of an oily nature, are not the greateſt impoveriſhers. Upon this point there can be no doubt. It is exemplified in the caſe of flax, which, if allowed to ripen its ſeed, nearly deſtroys the vegetative power of the ſoil, unleſs ſupplied with an extraordinary quantity of manure. Some judicious obſervations on lime are included in this eſſay. In addition to the univerſal principle, oil, Dr H. thinks that the nitrous acid of the air is of great efficacy; but we do not conſider his reaſoning here as altogether ſatisfactory.

2. *On a rich and cheap compoſt, &c.* In this eſſay, Dr Hunter endeavours to bring his doctrine into action, and propoſes to make a new compoſt with American pot aſh, train oil, and dry mould or ſand; and this compoſt, he thinks, will be equal to rape duſt, ſoot, and other hand-dreſſings. He, however, candidly acknowledges its inferiority to dung; and, in this idea, we decidedly concur.

3. *On vegetation, and the analogy between plants and animals.* This is a very ingenious paper, and probably will be preſented entire on a future occaſion.

4. *On ſteeps.* Steeping of grain is not a modern invention, but has

has been practiſed by huſbandmen ever ſince the Romans poſſeſſed Britain. Dr H. is not an advocate for ſteeps, nor are we, unleſs when adminiſtered as a pickle for the preſervation of wheat from ſmut. If ſteeping is meant to fructify the ſeed, then we are not its defenders; and if we do not miſtake Dr H. this is the ſum and ſubſtance of his opinion.

5. *On the roots of wheat.* Wheat has two ſets of roots, ſeminal and coronal; being ſubjected to the ſeverity of winter, its roots are well diſpoſed to withſtand the inclemency of the ſeaſon. When the froſt comes on early, it is evident that the coronal roots muſt be much injured; and, to obviate this, Dr H. recommends early ſowing, and burying the ſeed deeper. We have found, on the contrary, that the goodneſs of our wheat crops depends more upon the weather in ſummer, than upon previous circumſtances; and have repeatedly experienced, that a wheat crop, ſown under every diſadvantage, and hardly covered by the harrows, has turned out well, when a favourable July enſued; whilſt we have been diſappointed more than once with thoſe crops that looked beſt in the winter months.

6. *On the vegetation and motion of ſap.* This is a ſatisfactory eſſay, and muſt prove highly amuſing to the lovers of natural hiſtory. Animal bodies, from the nature of their ſtructure, are certainly more liable to diſeaſes than vegetables; yet the latter are expoſed to various maladies. In order to aſcertain theſe with any degree of accuracy, a knowledge of the anatomy of plants is abſolutely neceſſary; and this the author has ſufficiently elucidated.

7. *On a new method of cultivating weak arable lands.* The Romans in general fallowed and cropped alternately, and the Tullian ſyſtem was in a great meaſure founded upon the principles recognized by that people. Dr Hunter's method is ſomething ſimilar to that of Mr Tull, only his intervals are more extended. He propoſes to lay out ſuch weak ſoils in ridges nine feet wide, and to crop and fallow the ridges alternately, working the fallow-ridge with a ſmall one-horſe plough. We apprehend, in this way, conſiderable damage might enſue, when the crop was in a ripening ſtate, from high winds which would operate, in ſuch a ſituation, with double force. If our objection is juſt, the utility of the practice is diminiſhed.

8. *On the robinia or falſe acaſia, commonly called the locuſt-tree.*

9. *On a new ſpecies of grain called Siberian or Halyday barley.* This barley is now become unpopular. There are faſhions in grain and ſeeds, as well as in haberdaſhery wares.

10. *On potatoes.* Dr H. thinks the beſt way of planting this root is in hillocks, as the ſun has thereby free acceſs to the crown,

crown, by the falling down of the haulm into the ſurrounding trench. Two men and a boy, he ſays, are capable of planting an acre in four days, and he places the hills in the quincunx form, meaſuring four feet from centre to centre, five cuttings being put into each hill; one in the middle, and the others round it. He thinks the cuſtomary practice of putting the manure above the ſets is injudicious, and aſſigns very plauſible reaſons for the opinion.

11. *On the culture of turnips.* Dr H. conſiders the drill method as moſt correct, but thinks the broad-caſt, or old method, better adapted to the generality of farmers. In our opinion, drilling is attended with leſs trouble than broad-caſt, eſpecially in the article of hoeing. The machines now uſed are ſimple in their operations, and if the practice requires a ſpirited attention, ſo does every branch of huſbandry, if it is meant to be ſucceſsful.

12. *On the culture of carrots* The author of this paper ſtates his experience in the carrot huſbandry, in a diſtinct manner. In our opinion, this root will never be generally cultivated in Britain, we mean in the fields, nor do we think that it can be advantageouſly uſed in the feeding of animals.

13. *On the ſtudy of nature.* This is a ſhort philoſophical paper, and, from the goodneſs of the ſentiments, merits a ſerious peruſal.

14. *On the time of ſowing.* Here ſome marks are deſcribed which ought to regulate the period of ſeed work; but we ſtrongly ſuſpect, that in this variable climate, the moſt of farmers muſt take opportunity when it can be got, without attending to any other ſign than that the land will ſtand the plough and the harrow. In an average of ſeaſons this is neceſſarily the caſe; and as ſuch a length of time is conſumed betwixt the beginning and ending ſeed-work, an adherence to rules is utterly impracticable.

15. *On a wine, called by the Tartars Koumiſs.*

16. *On the connection betwixt botany and agriculture.* This is a very ingenious paper.

17. *On the nature and properties of marl.* This is a long paper, and divided into nine ſections, each containing a number of experiments. It would require a great deal more room than can be ſpared to give ſuch a view of the ſubject as would be in the leaſt beneficial to our readers. The experiments are diſtinctly detailed.

18. *On agriculture and manufactures.* The firſt object; with every nation, is the improvement of its agriculture; manufactures only deſerve a ſecondary conſideration. Perhaps Britain is in that happy ſtate which permits both objects to be encou-

raged. Dr H. thinks that national bounties or allowances are required to animate huſbandry. We ſuſpect, however, that the beſt thing that Government can do, is to let huſbandry alone, only taking care to remove ſuch obſtructions to its improvement as cannot be removed without legal aſſiſtance.

19. *On gooſe dung.* Virgil ſpeaks of geeſe as troubleſome birds, and very pernicious to corn. The author of this paper thinks otherwiſe, and recommends to farmers to houſe them regularly at night; in which caſe much valuable dung would be gained. We are of Virgil's opinion.

20. *On the advantages of raiſing potatoes on the fallows.* Abſtractly conſidered, it is not beneficial to take potatoes as a crop upon fallows; for, on a real potatoe ſoil, turnips may be more profitably cultivated. In the view of raiſing them in aid of poor people, the queſtion is altered, as ſuch are eminently ſerved by a ſmall piece of potatoe ground which can be cultivated at their leiſure hours. We believe the farm ſervants and cottagers, in North Britain, are uniformly aided in this way; at leaſt it is the general cuſtom of the county wherein we reſide.

21. *On drill ſowing.* Dr H. is not an advocate for drilling corn crops upon the principles commonly urged in its favour; but merely contends for its utility, becauſe the ſeed is thereby put in at an equal and ſufficient depth. He recommends narrow intervals, and of courſe does not ſupport the uſe of the horſe-hoe, which, indeed, is very much in uniſon with the ideas we hold on the ſubject. We concur with the doctor in thinking, that drill ſowing is a practice which will never be brought into general uſe.

22. *On manures and their operation.* This is the production of our countryman, the Reverend Mr Dickſon, and effectually refutes the Tullian doctrine, that earth is the food of plants. Good ſenſe and accurate obſervation are diſcernible in every line of this eſſay.

23. *On oil uſed as a manure.* The reſult of the experiments detailed, goes to prove that refuſe oil may be profitably uſed with earth in the formation of compoſt. We have heard of trials made by others which did not end ſo favourably.

24. *On top dreſſings.* Soot, malt duſt, pigeon dung, and rape duſt, are conſidered as top dreſſings, becauſe they are not worked into the ground by the plough; and the ſoils moſt benefited by ſuch applications are thoſe of a light, ſandy, and limeſtone nature; ſtiff loams and clays requiring lime and dung to break the coheſion of their parts. We entirely agree with Dr H. in the ſentiments expreſſed in this paper.

The firſt eſſay of book 2d, is *on the different quantities of rain which*

which fall at different heights over the ſame ſpot of ground. This is an ingenious diſſertation, but cannot be ſeparated.

2. *On the culture of potatoes.* The author thinks ſtable dung and moſs are the beſt manures for this eſculent, and details the experiments made by him, to aſcertain the point, in a diſtinct manner. The peruſal of this paper afforded us much ſatisfaction.

3. *On the analogy between plants and animals.* The vegetable world is certainly a very paſſive one, yet, in many inſtances, the laws which govern it muſt be allowed to be analogous to thoſe maintained through the animal world. The brawny oak gradually decays like mortal man. Hoary old age tumbles both into ruins, even though the axe be withheld from the one, and diſeaſe from the other. Vegetables enjoy ſleep as well as the animal world, and the amputation of a plant retards its growth, and ſpoils its ſymmetry, in as great a degree, as if the operation had been performed on an animal ſubject.

4. This eſſay is devoted to experiments and ſhort pieces of practical information tranſmitted to Dr H. As the experiments preſented bear the mark of authenticity and correctneſs, we recommend them to the ſerious conſideration of the public.

5. *On the moſt profitable method of managing light arable lands.* It is the Norfolk ſyſtem of four crops which is here recommended; but we believe many farmers in that county have felt a neceſſity for extending the rotation, in order that a greater variety might be introduced; and we think they have acted rightly.

6. *On the ſexes of plants.* We have received much ſatisfaction from this ingenious eſſay, and lament that it is not in our power at this time to preſent the whole of it to our readers. The true ſource of mildew, may here be diſcovered; at leaſt the theory is ingenious and plauſible.

7. *On a cheap and expeditious method of draining land.* Cheap cures are ſeldom the moſt effectual, and in the draining of land we have uniformly found, that a penny hained was not a penny gained. The value of labour and materials is now ſo much enhanced, that drains, of the ſize mentioned, could not be finiſhed completely at double the expence here ſtated.

8. *On top dreſſings.* This paper is from Mr Young, and contains much calculation and abundance of figures. The beſt conducted experiment may be defeated by a ſhower of rain falling at a time when a critical part of the proceſs is in hand; hence inferences from the reſult ought to be viewed with a ſceptical eye, till confirmed by repeated trials under ſimilar circumſtances.

9. *On the Scotch fir.* The fineſt fir-trees of Scotland are to

be found in the mountainous part of the Highlands, being the natural produce of theſe places; hence the goodneſs of the wood is occaſioned by the ſlow growth which neceſſarily enſued in ſuch barren ſituations. We coincide with the author in thinking, that in a better climate and better ſoil, the quality of the wood would have been leſſened, though its growth would have been proportionably haſtened.

10. *On the phyſiology of plants.* The internal ſtructure of plants is a curious and intereſting ſubject, as, by unfolding their economy, not only botany, but agriculture, might receive great improvement. The author demonſtrates the anatomy of plants with conſiderable perſpicuity, though it is certainly difficult to reaſon with preciſion on a ſubject where analogy muſt often guide us, becauſe poſitive facts are wanting.

We have now got through the firſt volume of this excellent collection, and, in the courſe of our examination, have had little cauſe to cenſure, but much reaſon to praiſe. We may only remark, that had the date of each paper, or the time it originally appeared, been annexed, the work would have appeared in a more perfect ſhape. Within the laſt twenty years, a conſiderable alteration has taken place in the agriculture of Great Britain, and many opinions and practices, originally conſidered to be ſound and orthodox, are now exploded and laid aſide. If the name of the writer had likewiſe followed the title of each paper, the trouble of conſtantly turning up the table of contents would have been avoided. Theſe, however, are venial defects, and may be removed in the ſecond edition of the collection.

N.

General View of the Agriculture of the County of Peebles, with various Suggeſtions as to the Means both of the local and general Improvement of Agriculture, by the Reverend Mr Charles Findlater, Miniſter of Newlands, pp. 413. *Octavo. Edinburgh,* Conſtable; *London,* Longman and Rees. 1802.

SEVERAL periodical writers have queſtioned the utility of *the* National Board of Agriculture; but, without giving an opinion on a point which, with ſome degree of juſtice, may be conſidered as problematical, we can ſafely declare, that the gentlemen employed under the authority of the Board, in the great work of ſurveying the kingdom, have in general experienced a poor reward for their ſervices. Every one of them was ſubjected to much perſonal trouble in the firſt inſtance; many not only neglected their own private affairs to forward the views of the Board, but incurred

incurred expences of various kinds, which never were demanded. Others, after volunteering their ſervices, and taking every manner of trouble to aſcertain facts, had their reports publicly diſowned, and, in ſome caſes, reprobated by thoſe who employed them. In ſhort, a degree of confuſion and miſunderſtanding has prevailed, ſeldom exceeded in the management of any other public eſtabliſhment.

The reverend author of the Peebles ſurvey has not, we believe, fared much better than the majority of his brethren; and we underſtand, that, had not ſome friends interpoſed, his labours would have ended in an abortion. Appointed during the adminiſtration of SIR JOHN SINCLAIR (the life and ſoul of the Board), to report the huſbandry of his native county, he cheerfully undertook the taſk, without aſking, or even expecting, any fee or reward; but, after taking much trouble in inveſtigating the ſtate of rural economy, and executing a report which diſplays juſt views of every ſubject embraced, when he appeared at the Board with the reſult of his labours, another Pharaoh ſat there, who knew not Joſeph. In plain terms, the report, for reaſons unneceſſary to be ſpecified, was returned to the author, and is now publiſhed by ſubſcription, like thoſe of many others, who took a ſimilar way of introducing themſelves into public notice. Leaving theſe topics, we enter, with pleaſure, on an examination of the work.

Peebles is a ſmall inland county, containing about 183,000 Scotch acres, and is divided into ſixteen pariſhes, ſome of which are of conſiderable extent, but none of them very populous. The climate is late and moiſt, the loweſt arable land being about 400 feet above ſea level, though cultivation is attempted at an elevation of 900 feet above that level. The weather in winter is rigorous, and in the ſpring months cold eaſterly winds often prevail. The predominant ſoil is moſs or peat earth, mixed in the vallies with portions of clay and ſand. A few old croft lands may be claſſed among loams, and the banks of the waters and rivulets generally preſent a rich ſandy ſoil, probably depoſited there after former floods or ſpeats; but the extent of theſe haughs or low grounds is not conſiderable.

From theſe things it may readily be ſuppoſed, that the diſtrict is better calculated for paſturage than aration; and, in fact, the latter mode of huſbandry is only carried on partially, though, in ſeveral reſpects, in a very ſpirited manner, both by landed proprietors and tenants. Under ſuch circumſtances, the author has judiciouſly narrowed his inquiries concerning the minutiæ of agriculture, and devoted his main attention to the moral excitements of agricultural induſtry, which are of univerſal application. He has not, however, neglected to give a diſtinct account of the

ſyſtem of farming adopted in the county. And the ſection on ſheep (the chief object of farmers in Peebles-ſhire), gives us more ſatisfactory and explicit information, than has been communicated through the medium of cotemporary writers.

In the introduction Mr Findlater ſtates, that agriculture can hardly be conſidered as a ſcience, becauſe it is not eſtabliſhed upon fixed and determined principles. He ſays, 'In regard to the food of plants, a principle which we ought to be able to ſet out with, as the foundation of the whole practice, had agriculture attained to the rank of a ſcience, no certain concluſion ſeems as yet to have been eſtabliſhed.' Perhaps this is refining too much; for, if agriculture is not to rank as a ſcience till the cauſe of vegetable life is aſcertained, we may ſafely conclude, that the firſt of arts muſt remain in a degraded ſtate. Without inquiring whether fire, or water, or air, or earth, conſtitute the food and nouriſhment of vegetables, or of noticing the numberleſs theories that have been preſented to public notice on that abſtruſe ſubject, we may remark, that the dulleſt farmer knows, that if he cleans and dungs his land ſufficiently, it will yield him a plentiful crop, provided phyſical obſtructions do not intervene. Allowing that we were able to aſcertain which of the above elements conſtituted the food of plants, yet, as we have not the command either of fire, air, or water, and cannot order the ſun to diſplay his beams, the air to blow genial gales, or the clouds to drop refreſhing ſhowers, it ſeems that little benefit would be gained, were the curtain of nature drawn up, and our eyes allowed to rove at large in what has hitherto been conſidered as a ſacred field. We have fruitful ſeaſons, and know not the cauſe; and the moſt acute philoſopher cannot account for the germination of a ſingle grain, no more than he can explain the myſterious manner in which he enjoys rational exiſtence.

Under the force of theſe impreſſions, we are led to think that inquiries concerning the agents of vegetation, will not lead to uſeful improvements, though they may gratify the minds of ſuch as are bent upon ingenious diſquiſition. It is certain they cannot benefit the operative farmer, though they may lead him aſtray from the path of action ſanctioned by experience, as has been exemplified in the conduct of Mr Tull and others. We are diſpoſed to think, that a degree of certainty is already attained in every point connected with rational improvement. If the earth is enriched with generous manures, or ſtimulated by powerful cordials, as circumſtances may require; if ſuperfluous water is removed; if noxious weeds are deſtroyed, and ſhelter afforded in naked counties by incloſures; then all that man is capable of executing is performed. In the knowledge of theſe things, the art, if not the ſcience, of agriculture may be ſaid to conſiſt; and

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the unenlightened farmer, who acts according to these principles, knows more of real agriculture than the most scientific philosopher.

Mr Findlater adds, 'But though the theory of agriculture is so very little advanced, many parts of established practice seem abundantly justified by their general success.' Here we think he speaks more to the purpose; for unless we assume that knowledge is gained by intuition, it must be gathered from observation and experience. The general summary of the practical principles of agriculture which follows, is given with precision, and conveys a high idea of the author's discernment.

But it would occupy the whole of this number, were we to present a complete analysis of this interesting work. We shall therefore content ourselves with a rapid view of its most prominent parts, and conclude with a few remarks.

The author has proceeded upon this plain and obvious maxim, 'That the best mode of ensuring the invention and prosecution of the most advantageous measures, is an arrangement which shall communicate to those on whom their execution is devolved a sufficient personal interest in the invention and execution.' To this maxim, except in one solitary instance, he has uniformly adhered. He is likewise hostile to restrictions in every shape, and even to legislative interference; thinking, with truth, that private interest is the most powerful motive to individual exertion.

'*Left to themselves all find their level price,*
Potatoes, verses, turnips, Greek, and rice.'

These lines, taken from the *Pursuits of Literature*, stand as a motto in the title-page, and furnish a fair sample of the sentiments which run through the whole work.

We observe that Mr F. is a keen friend to leases, and, from the instances quoted by him, we are disposed to think, that manifold advantages would accompany an extension of that tenure. On the Nidpath estate, where leases of 57 years duration had been granted, it appears that more meliorations have taken place, than upon estates possessed upon a shorter tenure; and that this, under a parity of circumstances, must universally take place, we should consider as an axiom. If permanent and substantial improvements are necessary, it is morally impossible that they will be executed when the possession is held for a short period; and unless such are performed by the landlord, they must remain unexecuted. In arable farms, where the great and leading improvements already exist, we will not say that long leases are absolutely necessary; but, in every county where agriculture is

in its infancy, ſhort leaſes operate effectually to keep it in a backward ſtate.

In like manner, the author ſeems adverſe to compulſory reſtrictions upon the farmer in the management of land, and places the conduct of the Edinburgh agents in a ludicrous light. He ſays,

'It is not a little ridiculous to ſee ſuch direction aſſumed by a buſineſs man, of the profeſſion of the law, very commonly a reſident Edinburgh cit; and provided, probably, with one univerſal model, like the bed of Procruſtes, to which all practice muſt, equally everywhere, be adapted: With equal propriety might he, in general, preſume to regulate the practice of manufacture, or of trade, in thoſe profeſſionaliſts who rent the houſes belonging to his employer, or who borrow his money at intereſt.'

Though the common practice juſtifies the obſervation, yet we are free to ſay, from our own experience, that the errors of theſe gentlemen proceed more from inattention, than any fixed deſign of injuring the tenant. They know no better; therefore, unleſs the tenant beſtirs himſelf, or gets the conditions of ſet ſatisfactorily adjuſted before the rent is fixed, the agent muſt of courſe act agreeable to the information he poſſeſſes. The fair way, when written propoſals are requeſted, is to preſent a liſt of terms, or what is commonly called the conditions of ſet, to the intended offerers, leaving them to fill up the ſum of rent themſelves. That this is not agreeable to the common cuſtom, we confeſs, for the rent is uſually agreed upon in the firſt place, and the conditions afterwards; though it is notorious, that, by arbitrary reſtrictions, the value of a farm may for a time be conſiderably leſſened.

In arranging the ſize of farms, the author judiciouſly declares againſt limitations.

'When Laputa projectors come gravely forward, the one with his ſcheme of 100 acre farms, the other with his of 50, and a third with a ſort of agrarian cottage ſyſtem, it is difficult to determine whether our ſpleen or our laughter ought to be moved. So long as they ſhall confine themſelves to the pragmatical pointing out of their proper intereſts to the parties concerned, but who, it ſeems, have not ſenſe to perceive their own advantage, in ſo far they can do no harm, and the parties will judge for themſelves. When, however, they would attempt to enforce their ſpecific *noſtrums* by legiſlative authority, their interference is of a more ſerious nature than mere pragmatical impertinence.

'The Parliament of Great Britain has not been in the habit of carrying meaſures by acclamation: A ſort of prevalent, philoſophic, native phlegm, ſeems unſuſceptible of enthuſiaſtic admiration of the brilliant

ſchemes

ſchemes of projectors. The ſilent operation of the writings of the profound and ingenious Doctor Adam Smith, ſeems to have given a check to the intermeddling ſpirit of regulation.'

If improvements can only go forward when the tenant is ſecured by a leaſe, it becomes an important object to inveſtigate the nature and effect of this mode of tenure. Here we muſt remark, that the laws of Scotland do not ſeem to recognize the tenant's right in ſuch an extenſive way as might at firſt ſight be imagined, and the impolicy of our legal ſyſtem, in this reſpect, is ably deſcribed. We forbear, however, to examine the arguments uſed by our author, as we mean to extract them at length upon a future occaſion.

Mr F. thinks, that extending the right of franchiſe to the tenantry of Scotland would not prove beneficial to them, and ſeems to be of opinion, that the Engliſh tenants, who poſſeſs that right, are thereby reduced to the moſt abject ſtate of ſervility. If leaſes were to be withheld, we cheerfully agree that the right of franchiſe would be of no advantage.

Note, (G.) p. 350. contains a moſt ingenious defence of the unproductive claſſes of mankind, viz. the landed and monied intereſts, whoſe exiſtence is declared to be indiſpenſably neceſſary to the formation and exiſtence of the claſs that is poſitively induſtrious. On this ſubject much may be ſaid on both ſides, and the affirmative of our author's propoſition depends greatly upon the manners and life of the unproductive claſſes. They may do much good to be ſure, and may alſo do much harm. They certainly give employment to many people who might otherwiſe ſtarve; but is not this connected with Mandeville's celebrated maxim, *that private vices become public benefits!* Mendicant idlers, who contribute nothing to the uſe or ornament of ſociety, in our author's opinion, are abſolutely good for no valuable purpoſe; and in this ſentiment, we perfectly concur. Such form a part of what is uſually called a miſchievous population, and, unleſs kept from a principle of charity, ought not to be tolerated.

The note upon foreſtalling and engroſſing has already been inſerted in our Magazine, vol. 2. p. 19. and it is with pleaſure we notice, that it contains the moſt ſterling and liberal ſentiments. We hope, however, that it will be long before ſuch an antidote to popular deluſion is again required; though, if neceſſary, the ſtrongeſt reaſons in favour of a free trade in corn, may at any time be gathered from this article.

Upon all the ſubjects mentioned, and indeed over the greateſt part of the work, Mr F. ſpeaks like a man totally free of prejudice, and with the feelings of an acute and enlightened philoſopher. We are not ſure, however, if he is not influenced a little

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by a ſmall ſpark of the *eſprit du corps*, when he diſcuſſes the tithe queſtion; but let him ſpeak for himſelf.

'Conſtitutions, apparently oppreſſive, are often more ſo in appearance than in reality; ſuch, in all probability, is the caſe with the tithes in England. To the Scots landholder, privileged as he is, it may appear hard, that the tithe of the Clergy ſhould riſe upon him, in conſequence of improvements made ſolely at his expence, and to which they have contributed no ſhare. As, however, the clergy will, doubtleſs, in general, find it convenient to live upon good terms with their pariſhioners, it is preſumeable that they will ordinarily conſent to accept of a very eaſy compoſition. The farmer (who, in taking his leaſe, muſt, no doubt, make allowance for the poſſible exaction of the whole tithe) will, therefore, always find himſelf eaſier, under the moderate compoſition of the clergyman, than he could have done under the proprietor, ſuppoſing there was no ſuch thing as tithes; becauſe the latter lies under no reſtraints of this nature, to prevent him from exacting full rent for the whole value of the ſubject. Thus would it ſeem probable, that tithe ſo far operates to the encouragement of the farmer, in preventing him from being diſabled to carry on his improvements by a rent racked to an exorbitant ſtretch: But the improvements which ſuit a farmer, upon any proper length of leaſe, are of equal importance to the increaſe of the productive powers of the ſoil, as thoſe longer-ſighted improvements of more diſtant return that are ſuited to the more permanent intereſt in the ſubject of the perpetual proprietor. Without doubt, the clergyman, as well as the proprietor, expects to reap where he has not ſown; and, upon a renewal of leaſe, will look for a riſe in compoſition, as the other will for a riſe of rent, proportioned to the increaſed value of the ſubject; though improved entirely by the proper outlay of the farmer's capital, and though neither have contributed one farthing to the improvement. If, however, the lands ſhall have, meanwhile, been improved in productive value, it muſt be a matter of ſmall concern to the public, whether he who reaps the immediate benefit ſhall be a fox-hunter or a preacher. Extraordinary things are alone thought worth reporting; and the inſtances of oppreſſion of the farmers by the Clergy, which reach us in Scotland, candour muſt therefore diſpoſe us to conſider as the exceptions from the general rule.'

We would here remind our author of the maxim ſtated in the introduction to the work, and inquire whether the occupier of land has a *ſufficient perſonal intereſt* in the invention and execution of improvements, if a third perſon can legally come and carry off a tenth part of the fruit of his labours. It is no argument to ſay, that if the tithe-holder did not carry off this tenth, the landlord would require ſo much more rent, for the landlord could not, during the currency of a leaſe, demand a halfpenny more rent than was covenanted, or even, if the tenant poſſeſſed without ſecurity of that tenure, he could not demand an extra

rent

rent for the current crop. To make our author's argument complete, it ought to have been firſt maintained, that both the fox-hunter and the preacher regulated their demands in direct proportion to the goodneſs of the crop; and this being done, the inference would have been concluſive. We do not puſh the matter farther, apprehending that an additional argument is altogether unneceſſary.

The ſection on the corn laws is much to our mind. We are, like the author, hoſtile to every compulſory reſtriction on trade, and are clear the nation has not received benefit from the regulating laws paſſed from time to time on this ſubject. Our anceſtors dreaded being ſtarved, if a *free* exportation was permitted, and, in the preſent age, we are apprehenſive of being inundated with foreign grain, if a free importation was to take place. Were exportation allowed at all times, except in thoſe of dearth and famine, and importation permitted under protecting duties, a vaſt burden would be taken off the trading and agricultural intereſt of Britain. We find that clover ſeed, for inſtance, pays the ſame duty, whether the commodity is cheap or dear, and yet a plentiful ſupply is always procured. It does not appear either that the free import of foreign ſeed has diſcouraged the home growth. If the corn trade was in this way regulated, and protecting duties impoſed equal to the difference of the value of labour and money in Britain, when compared with foreign countries, we ſee no harm that could enſue from a free trade at all times. At preſent, the corn trade is an abſolute ſpeculation; but the propoſed alteration would ſerve to put it upon a footing with other commercial undertakings.

The ſyſtem of entails is viewed in a true light, and the act of Parliament, 10th of his preſent Majeſty, paſſed for the expreſs purpoſe of leſſening their inimical effects, is ſaid not to have operated in Peebles-ſhire, and very partially in the reſt of Scotland. This act, like every other half meaſure, has proved unequal to the evils which it was intended to counteract, though, in its original ſhape, it might have produced conſiderable advantage.

Speaking of Nidpath caſtle, and the deſtruction of the woods around it, we find ſome very pertinent obſervations on this ſubject.

'We laugh at the ſuperſtition of the Chineſe, in paying divine honours to the memory of their deceaſed anceſtors; though it is probable, this their worſhip is, like that of other people, ſo managed, as not eſſentially to interfere with their temporal intereſts. But might not a ſtranger to our laws and cuſtoms be tempted to tax us of a more than Chineſe ſuperſtition, in paying to the wills of our anceſtors, where they interfere ſo materially with our temporal intereſts, as to preclude all power of choice on our part, in ſome of the moſt eſſential parts of their

their management, an obedience more devoted and implicit, than what is generally paid even to an acknowledged Divine authority?'

The ſection on ſheep farms contains n excellent account of the efficient Tweedale huſbandry, but cannot with propriety be abridged. We muſt therefore leave it to be taken up at a time when we have more leiſure upon our hands.

Huſbandry implements, of every deſcription, appear to be of the ſame improved kinds as are now generally uſed in Scotland, and this might have been expected in a county where ſo many of the reſident proprietors may be characteriſed as enlightened and accompliſhed farmers. SMALL's plough, with a curved mould board, is moſt commonly uſed; and the Scotch plough, of a light conſtruction, is preferred for lands abounding with ſtones. Cleaning ploughs, of various kinds, are in the hands of every farmer who cultivates green crops. Mr Sanderſon, on his farm near the village of Linton, has alſo invented a draining plough, which, with ſix horſes, clears out a drain of two feet by eighteen inches. Sir George Montgomery has alſo introduced a draining plough, called *the Miner*, intended to follow another plough of the common kind, and to break up the pan or ſubſoil, thereby furniſhing a channel or deſcent for the water through a bottom formerly retentive. Drilling machines for turnips are of courſe frequent. One horſe coup carts are almoſt univerſally in uſe, and fanners for dreſſing corn are to be found on every farm. The number of thraſhing machines, in this ſmall county, is aſtoniſhingly great, no fewer than 42 being wrought, whereof 18 are driven by water. The placing of the beaters or ſcutchers upon the drum in a line croſſing, at a ſmall angle, that of the drum's axis, inſtead of being placed parallel to it, as mentioned in the addenda to the Roxburgh report, we cannot conſider as any improvement. In the firſt place, the force of the beat or ſwitch would be proportionably leſſened, whilſt the ſtraw would neceſſarily be drawn to one end of the drum, and the motion of the machine of courſe be impeded.

We coincide with our author in thinking that the coſt of completely encloſing ſuch a county as Peebles, would much more than exceed the probable advantages. A paſture encloſure to ſerve as an hoſpital, or to confine rams, would, however, be advantageous on every ſheep farm. In ſeveral counties we have noticed uſeleſs outlays of money in this mode of improvement; but the expence is now ſo great, that the evil ſtands a fair chance of correcting itſelf.

Some excellent obſervations are to be found in the two ſections upon farm-houſes and cottages, and the author deſcribes the former and preſent ſtate of ſociety with philoſophic preciſion. He ſays, p. 36.

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'In former times, the Scots tenant poſſeſſed the ſentiments and habits of the ſubject of an Aſiatic deſpot, rather than thoſe of a free man: deſtitute of that manly confidence, inſpired by the conſciouſneſs of ſecurity in the equal protection of law, he relied more upon the reſources of his own dexterity and cunning; and the dread of being plundered made him cautious of diſplaying ſuch wealth as he poſſeſſed, either in improvements upon his farm, or in purchaſing ſuch comforts and accommodations as its profits might afford. From this contracted habit of concealment, and from the ſmall degree of wealth which he had any opportunity of acquiring, the Scots tenant was contented to live in the moſt miſerable hovel; the poverty, too, of his landlord, who could draw little rent from a wretched tenantry, deſtitute of every proper encouragement to induſtry, diſabling him, even had he been willing, to afford much better accommodation. Theſe hovels, ſuch as they were, coſt nothing to the proprietor, but were upheld for ever by the tenant; it being underſtood, at common law, independent of covenant, that the outgoing tenant ſhould leave them always to his ſucceſſor, *in tenantable and habitable condition:* From uſe and practice *tenantable and habitable*, had come to imply merely *wind and water tight;* and the common ſtyle of farm-houſes admitted of little more accommodation than mere ſhelter from the weather.

'In conſequence of the firm eſtabliſhment of monarchy, and the diſſolution of ariſtocracy—of the abolition of heritable juriſdictions, and the ſubſtitution of independent Judges, unconnected with the ſubjects of their own juriſdiction, and having no perſonal intereſt in their own deciſions—the ſecurity of the tenantry, as well as of all the lower orders in ſociety, is confirmed: General induſtry has kept pace with growing ſecurity; and the ſituation of every rank is altered greatly for the better. In conſequence of increaſing ſentiments of liberality among the landed gentry, of ſecurity among the tenantry, and of wealth in both, the ſtyle of farm-houſes through Scotland has been much improved.'

Speaking of cottages, Mr F. judiciouſly remarks, that

'Upon the ſeparation of farmers from their ſtate of townſhips, runrig, and commonty, (to which they had been driven, for mutual defence, in times of turbulence), into diſtinct poſſeſſions with ſeparate reſidences, the farmer, who obtained poſſeſſion of the farm upon which the cluſtered dwellings had been erected, might have a ſuperfluity of houſes to diſpoſe of to cottagers; and in a ſtate of ſociety, where the little extenſion of arts and manufactures afforded few outlets to profitable employment, more people might be found who would rent ſuch houſes or cottages, though there was ſmall demand for them as country labourers, from their finding nothing better to do: Such ſituations would be, however, deſerted, when better employment occurred to their occupiers; and I doubt not but ſuch ameliorations may have often ſuggeſted notions of thoſe ideal diſtreſſes ſo graphically depicted, and ſo pathetically deplored, in Goldſmith's fanciful poem of the *Deſerted Village*. The notion of whining over the deſertion and depopulation

population of the country, is now abandoned to idle and ignorant ſentimentaliſts, who are left to lament, at pleaſure, the loſs of thoſe enchanting fancied ſcenes of rural content, and cottage innocence and felicity, which no man of ſenſe believes ever to have had an exiſtence but in the imagination of the poet.'

Again p. 50, he obſerves,

'The perfection of improvement would ſeem to infer the complete ſeparation of every profeſſion: The occupation of every inch of the lands by profeſſional farmers; and the cluſtering of labourers and artificers into centrical villages, ſo completely detached from the occupation of land, as to buy even their milk, as well as every other kind of farm produce, from the farmer by profeſſion; perhaps, even the profeſſional carter, to be ſo inſulated within the buſineſs of his profeſſion, as to purchaſe from the farmer every article of his horſe's provender. Such a completion cannot, however, exiſt, but in a country rich in produce by nature and cultivation, and poſſeſſing a very numerous population; but it is the tendency of the efforts of ſelf-intereſt in every individual to produce an approximation towards it, ſo far as circumſtances will admit. Meantime, it were idle to attempt, by political regulations, prematurely to enforce the adoption of ſuch arrangements as will, of their own accord, enſue in the natural courſe of things. It were ſtill, however, more abſurd, to counteract, by regulation, theſe natural tendencies towards amelioration, by forcing the land into ſmall cottage poſſeſſions, where there is no demand for ſuch minute diviſion; either in yielding to the Cockney apprehenſion of that bugbear, the monopoly of farms; or to the enthuſiaſm of ſentimentaliſts, wiſhing to embody their poetic conceptions, by the *gratuitous* erection of cottages; which muſt neceſſarily transform their occupants, from independent labourers, paying in work for what they receive in wages, into abject dependent beggars.'

The ſentiments expreſſed in the ſection allotted to a comparative view of horſes and oxen for farm labour, are very ſatisfactory to us; and with an extract from it, we ſhall end our examination.

'Oxen, once univerſally uſed in all kinds of tilth, are now as univerſally laid aſide; a fact clearly deciſive of the inutility of uſing oxen for labour. Could the farmer, by uſing oxen inſtead of horſes, ſend more produce to market of beef or corns from his farm, would any thing elſe be neceſſary to induce him to adopt the change? An intereſt may not be purſued when it hath never been clearly ſeen; but nothing will induce the dereliction of an intereſt, already ſeen and reaped, but the diſcovery of a ſuperior intereſt ariſing from a different management.

'The ſubſtitution of oxen for horſes in labour is, nevertheleſs, the theme of popular declamation; and it would not be at all ſurpriſing, if ſome of the wiſe city committees, ſitting in profound inveſtigation of the cauſes of the high prices of proviſions, ſhould bethink themſelves

ſelves of applying to the Legiſlature to enforce this ſubſtitution by compulſion. We would rather recommend it to them, to get over their prejudice againſt the uſe of horſes fleſh as food: No deſcription of paſturing animals will take on fleſh more ſpeedily than the horſe; and, if his fleſh ſhould become palatable, he would be, in this reſpect alſo, much more economically kept than the ox. We have heard of dogs having been ſerved up at table, in this country, after the manner of Otaheite: It would be much more patriotic to introduce the Tartar faſhion, of eating old horſes well fattened: Indeed, after overcoming the repugnance ariſing from the hideous and diſguſting appearance of that undiſtinguiſhingly voracious and ſcrophulous-looking animal, the ſow, repugnance to the fleſh of horſes would appear a mere prejudice of education—like the prejudice againſt potatoes entertained, according to Count Rumford, by the Bavarians, which obliged him to introduce them by ſtealth, as an article of food, into the poors-houſe at Munich.'

A correct map of the county is given, which is an appendage that ought always to accompany ſuch publications. The work is dedicated to Sir James Montgomery, Bart. late Lord Chief Baron of the Exchequer, who, in more reſpects than one, might juſtly be conſidered as the father of the county. Indeed Tweedale has long poſſeſſed a race of proprietors attentive to agricultural matters, and zealouſly active to promote the proſperity of its inhabitants.

Two valuable papers are added by way of appendix. 1. An *account of Whim*, the ſeat of Sir James Montgomery, Bart. with ſome obſervations upon the culture of flow moſs, and of ploughable moſs, communicated by him. 2. An *eſſay on the diſeaſes of ſheep*, which appears to be of great merit. We ſhall ſet aſide both as a *corps de reſerve*, that may be brought into the field when circumſtances require ſuch aſſiſtance.

Thus have we offered an imperfect and deſultory review of a performance, which, with ſtrict propriety, may be ranked among the firſt claſs of the county ſurveys. Our opinions, almoſt in every point, are in uniſon with thoſe entertained by the worthy author; and it is with pleaſure we add, that principles, ſuch as guided him, are ſpreading more and more every day. On a former occaſion, vol. 1. p. 284. we noticed 'that it was a circumſtance extremely creditable to the Scottiſh clergy, that ſuch of their number as were appointed, under the authority of the Agricultural Board, to aſſiſt in the great work of ſurveying the kingdom, had performed their reſpective parts aſſigned them with ſingular ingenuity and judgment; while in England, where the profeſſion is ten times more numerous, only one ſolitary individual, to the beſt of our recollection, was ſelected from the clerical order for handling the labouring oar on that important occaſion.' The ideas which we then entertained concerning the talents of the Scottiſh

Scottiſh clergy for executing rural ſurveys, are more confirmed by the peruſal of the one now under conſideration; and we can with truth declare, that the different branches of rural economy and practical huſbandry could not have been deſcribed with greater accuracy; nor could exiſting abuſes, and the beſt way of rectifying them, have been more ably pointed out, than is done by the reverend author of the Peebles ſurvey. In our next, we ſhall take up another ſurvey executed by a gentleman of the ſame order, and truſt we will have no occaſion to change our ſentiments reſpecting the natural fitneſs of the eſtabliſhed clergy, for deſcribing the rural economy of the diſtricts with which they are connected.

N.

It appears that a ſmall omiſſion had taken place in the above work, and the author, like a man of liberal principles, haſtens to correct it.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

As my agricultural ſurvey of Peebles has chiefly been indebted to your work for any notice which it has attracted from the public, and as it will chiefly be confined within the region of your circulation, I will take it kind, if at any time you ſhould think proper to direct the attention of the public to it, by extracts, or otherwiſe, if you will indulge me in that opportunity of ſupplying an omiſſion, of which I have been unintentionally guilty. It is the omiſſion of the *hot-houſe* at Hartree, belonging to Colonel Dickſon, which I had not recollected when enumerating the hot-houſes of the county. As the great purpoſe of my work was to notice the *profitable* rather than the *ornamental*, it is no wonder that ſome of the latter ſhould eſcape me. The ſpirited practice of many tenants would alſo have well deſerved notice, had a particular enumeration been intended; but I confined myſelf to ſuch practices as were primary in the introduction of the new ſyſtem, or as were more illuſtrative of ſome general principle. I am,

Yours, &c.

CHARLES FINDLATER.

Newlands, March 1. 1803.

Letter

Letter addreſſed to the Commiſſioners of Supply and Landholders in the County of Stirling; containing an Hiſtorical Sketch of the Malt Laws; with Obſervations illuſtrative of the inferiority of Scots to Engliſh Malt, and the cauſes which produce that inferiority. Edinburgh,—*Conſtable.* Stirling,—*W. Anderſon,* and *C. Randal.*

We have received much ſatisfaction from this plain and temperate ſtatement, and truſt that its effects will not be loſt upon the landed intereſt of Scotland, who, we muſt confeſs, have rather looked upon the malt tax of laſt ſeſſion with an eye of indifference. The author, after giving an hiſtorical account of the exciſe upon malt, and of the zealous oppoſition diſplayed by the Scots members when an equal tax was originally propoſed in the Parliament of Great Britain 1713, proceeds to ſtate ſome pertinent obſervations on the proceſs of malting, and the cauſes which render Scots barley inferior in quality to the barley of England. We cannot do better than give this part of the letter in his own words, as it is replete with ſound ſenſe, and ſolid information.

'Malting, you all know, is a proceſs preparatory to brewing or diſtilling. Its objects are, to ameliorate the quality, and increaſe the quantity of that ſaccharine ſubſtance from which, according to the beſt chemiſts, all ſpirits are extracted. Whatever has a tendency to produce theſe effects, either whilſt the plant is in its natural ſtate of vegetation, or after it is ſubjected to the operations of the maltſter, muſt tend to enhance the value of the malt. Sugar is almoſt univerſally produced by vegetables, but it certainly abounds moſt under the influence of a warm climate. Heat and dry weather always give the promiſe of a fruitful cane, whilſt cold and rain render it aqueous and unproductive. The ſame thing happens to the grape. When foſtered by the genial influence of the ſun, and preſerved from an exceſs of moiſture, it yields a rich return of generous wine; whereas, where much expoſed to rainy weather, the produce is weak, and very ſoon becomes ſour and vapid. But what happens to plants which yield ſugar and alcohol in greater abundance, will in a more limited degree apply to thoſe which afford them in ſmaller quantities. The grain of a cold and variable climate muſt therefore produce leſs of the ſaccharine ſubſtance, which is the eſſence of malt, than grain which is raiſed under more favourable circumſtances.

'One of the operations of the vegetative organs of plants, is to diſengage this ſaccharine matter, and render it ſenſible to the taſte. Hence the ſweetneſs of potatoes and other vegetables, when they begin to ſhoot. The moiſture of the earth and gentle heat to which the ſeed is expoſed, very ſoon act upon it, and make it tend to decompoſition. The parts

recede from each other; the conſtituent principles are left to enter into new combinations; and ſuch as had been only incompletely formed by the interpoſition of other particles, are enabled to ſeparate from theſe, and perfect the combination. The whole ſubſtance of the grain is by this means converted into a mealy powder, from which the ſugar is eaſily diſengaged by ſolution in water.

'The proceſs of *malting*, is an artificial vegetation. The barley is ſteeped in the couch, that it may imbibe a ſufficiency of moiſture, and is then laid in a heap on a floor, where the temperature is high enough to encourage vegetation. This proceſs is allowed to proceed till the acuſpire or young ſhoot is juſt ready to protrude beyond the huſk: whatever exceeds or falls ſhort of this point, (for reaſons to be afterwards explained,) occaſions a loſs of value on the malt. But, beſides the original ſaccharine ſubſtance in the grain, it would appear that additional ſugar is formed in malting. The conſtituent parts of ſugar are, oxigen, hydrogen, and carbon. The two firſt will be ſupplied by the water in the *malt-bath*; the laſt by the coak or cinders, which are uſed as fuel in the kiln. Yet this augmentation in the malting, which is very conſiderable, both in bulk and weight, will depend very much on the quality of the grain. A large full pickle, with a thin huſk, and ſtronger vegetative organs, will decompoſe a greater quantity of water, and form a greater addition to its original ſugar, than one inferior in all theſe qualities: of courſe, if the Scotch barley is inferior to the Engliſh, it will be proportionally leſs augmented by theſe operations.

'It ſeems to be a common opinion, that, becauſe the ſaccharine ſubſtance of barley is not perceptible to the taſte, it is entirely formed by the proceſs of malting; and that the conſtituent parts only are to be found in the grain, which, during the vegetation or malting, are allowed to combine. Were this the caſe, the climate could not ſo much affect us. But the truth lies on the other ſide. There are no ſubſtances more common in nature than oxygen, hydrogen, carbon. Were there no peculiar organization neceſſary for adjuſting the proportions of theſe elements, and aſſiſting their combination, or were we able, on the contrary, to procure ſugar wherever we could bring them together, that article would be abundant in every quarter. But every one knows that this is far from being the caſe. The fact is, that, inſtead of being altogether produced by the malting, the additional ſaccharine ſubſtance thereby obtained, ſcarcely compenſates the loſs of ſpirit evaporated during the drying, and part of the rootlets which are rubbed off in the turning. This is completely proved by the practice of diſtilling from unmalted barley, from which I have been told two more gallons of ſpirits can be extracted per boll, than from the ſame kind of grain thoroughly malted. It appears, therefore, that the chief object of malting is to ameliorate the ſaccharine juices, by freeing them from thoſe oleaginous and foreign ſubſtances which give a diſagreeable flavour to the liquor. And it follows, of courſe, that it is to the grain we are to look for the comparative quantities of ſugar and ſpirit.' p. 13–17.

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The author then ſhews, from meteorological tables, the difference of heat in the two countries, which he calculates to amount to four degrees. We muſt here remark, that the ſame degree of heat in September will not have the ſame influence upon grain as it would have produced at an earlier period, becauſe the days are ſhorter: therefore, as Scotiſh barley is ſeldom harveſted ſooner than the middle of that month, and often a great deal later, it muſt be deteriorated in a greater proportion than what at firſt ſight appears to be the caſe from theſe calculations. Engliſh barley, at leaſt in all the counties ſouth of Trent, (and it is from thoſe counties that importation is made,) is ſafely houſed or ſtacked, before a ſickle is drawn in one fiftieth part of North Britain.

After noticing the humidity of the climate in Scotland, which certainly affects both wheat and barley materially, the author, with propriety, notices another obſtacle of great magnitude. He ſays,

'In the malting, the great *deſideratum* is to malt the grain equally. When the proceſs of vegetation is ſtopt by the heat of the kiln, if a part of each ſeed only has vegetated, the remainder of it is unmalted; and, on the other hand, if the acroſpire has been allowed to ſhoot out beyond the huſk, the ſaccharine matter contained in it is likewiſe loſt. The inequality of grain, which different ſoils and ſituations muſt produce, cannot fail, in ſome caſes, to render this difficulty in malting unſurmountable. In Scotland, the face of the country is beautifully varied. Narrow valleys, with rich but mixed ſoils, are amongſt its characteriſtics. As the neighbouring mountains are compoſed of granite, ſchiſtus, limeſtone, or other rocks, the ſoil will be a mixture of ſand, clay, or calcareous earth; and where different ſtrata of theſe rocks lye near each other, we find, in the vallies below, different ſoils within the compaſs of a few acres. The inequality of the ſurface, too, creates a difference in the expoſure of the field; ſo that a ſmall farm often contains perhaps all the varieties of ſoil, and equal varieties of expoſure. The grain produced on theſe farms muſt be affected by theſe circumſtances; and it is impoſſible for the farmer to ſeparate the barley according to its reſpective qualities. In England, on the other hand, the country is flat, and the ſoil of large diſtricts uniform. If properly laboured, the grain will be of an equal quality. Now, were the barley of the two countries of the ſame value in every other reſpect, the advantage the Engliſh barley enjoys in this particular alone, would enable it to compete in our markets, not only at a high price, but even with the malt-duty in its original proportions.' p. 28, 29.

We perfectly concur with the author in thinking, that Engliſh barley will at any time ſtand its ground in the market under a duty double of what is paid upon the produce of Scotland; and,

even when ſo circumſtanced, may be profitably uſed both by the diſtiller and brewer. Want of room, however, forces us to abſtain from illuſtrating this matter. Indeed, experience may warrant us to receive it as an axiom.

Many people have taken up this buſineſs entirely as a queſtion of revenue. In our opinion, the point of view, in which it deſerves conſideration, is the injury which will be ſuſtained by the agriculture of Scotland; and we would have rejoiced to have ſeen this ably demonſtrated. It is clear that the growth of barley under the influence of an equal tax, muſt be neceſſarily diſcouraged, in every Scotiſh county, in direct proportion to the lateneſs or humidity of its climate, becauſe the increaſed duty will operate preciſely as a bounty upon the importation of Engliſh grain. Even at the old rate of duties, this was partially felt; but as the duties are increaſed, or the price of the perfect article is augmented, the difference in value, betwixt the barleys of both countries, muſt likewiſe be more diſcernible: hence, the inferior or ſecond kinds will either be altogether neglected, or ſold upon terms that will not defray the expence of cultivation. N.

PART III.

Agricultural Intelligence.

We noticed, in our laſt, that meetings of the landed intereſt had been held in ſeveral counties for conſidering the act of laſt Seſſion, impoſing an additional duty on malt, wherein the principle long eſtabliſhed, and till then uniformly adhered to, of taxing barley malted in Scotland at one half of the Engliſh duty, had been completely departed from. At that time, we flattered ourſelves, that a meaſure ſo inimical to the agricultural proſperity of this country would be combated to the uttermoſt, and that every conſtitutional ſtep, ſuch as petitioning Parliament and inſtructing members, would be taken by the landed intereſt, as guardians of the public welfare. It is therefore with concern we obſerve, that only a few counties (Aberdeen and Stirling particularly) have beſtirred themſelves on this occaſion, and that, in many others, the ſubject has not been deemed worthy of the ſlighteſt notice. At ſome meetings the queſtion was diſcuſſed in a mere milk and water way; and the arguments uſed in ſupport of the tax, ſatisfy us that the authors were totally ignorant of its nature and

and conſequences. In fact, the meaſure has been diſcuſſed as a revenue queſtion, though not oppoſed by a ſingle perſon on that ground; and the probable, we might have ſaid the certain effects of the act, have been either blinked or miſunderſtood.

To us, who are little intereſted in the iſſue, but who enjoy many opportunities of aſcertaining the conſequences, it appears, that an equal duty in both countries upon any article whatever, muſt neceſſarily give a decided preference to the one which produces the article in the greateſt perfection. Abſtractedly conſidered, this poſition will be received as an axiom by the greateſt driveller in political œconomy, though recent circumſtances prove that an equal malt duty is not by many people conſidered in that light. This leads us to inveſtigate the buſineſs at greater length than cuſtomary, when any public meaſure connected with agriculture is noticed; and we are influenced to do ſo, by a firm conviction that the tax, if perſiſted in, will prove eminently injurious to Scotiſh agriculture. The tenantry muſt ſuffer in the firſt inſtance, but the proprietors will not afterwards eſcape.

In entering upon this inveſtigation, two points occur to our view, which merit ſeparate diſcuſſion. 1. The *natural* difference in value betwixt the barleys of England and Scotland. 2. The *artificial* difference created by the immenſe duties levied on the article, from the time it is malted to the period when it is manufactured into ale or ſpirits. We apprehend, that the majority of the landed intereſt are not ſufficiently acquainted with the extent of the natural difference; and as for the artificial difference, it does not appear that the matter has occupied their thoughts.

That Engliſh barley is much ſuperior to the produce of Scotland, we believe will not be diſputed. Every perſon who reflects upon the market value of grain, ripened and harveſted in the early part of autumn, under the influence of a hot ſun, will readily acknowledge the inferiority of ſuch as may happen to have been harveſted, even upon the ſame farm, three or four weeks later, when the air was damp, the rays of the ſun leſs intenſe, and adverſe weather had occurred. If this inferiority prevails in grain raiſed on the ſame farm (and from experience we know it does), the like difference muſt aſſuredly follow, in a comparative view of Scotiſh and Engliſh barleys, taking the produce of both countries upon a fair average. In England, where the climate is conſiderably earlier, the greateſt part of barley ſeed is made in February and March; and in all the exporting counties, the young plants fairly cover the ground before much Scotiſh barley is ſown. This gives a ſtart at the outſet, which is afterwards increaſed in every ſtage, and advances the value of the crop ſomething in the way that a ſum of

money

money is augmented by adding compound to ſimple intereſt. Beſides, the grain reaches maturity at a period when the full advantages of a hot ſun are gained; and this increaſes the ſaccharine ſubſtance which produces ale and ſpirits. To our farming readers, who, profeſſionally, muſt be acquainted with the immenſe benefits attending an early harveſt, an apology is due, on account of this ſtatement; but ſomething of the kind appeared neceſſary, as the ground-work of our after arguments.

Having thus ſhown that Engliſh barley, from phyſical circumſtances, is ſuperior to Scotiſh barley, we come next to aſcertain the extent of that ſuperiority, or, in other words, to ſtate the natural difference of value betwixt the barley of both countries.

The quantity of proof ſpirits that can be drawn from a Linlithgow boll, of the average of Scotiſh barley, does not exceed eleven gallons, whereas the uſual qualities imported from England (and theſe are below the average of Engliſh produce) will yield thirteen and three fourths gallons, and in ſome caſes above fourteen gallons, making a balance of two gallons and three fourths at leaſt in favour of the latter. This, in fact, conſtitutes the *natural* difference betwixt the barley of both countries; and, if no duties were impoſed upon the manufacture, would be equal to twenty-five *per cent.* or thereby of the original value. This difference is, however, *artificially* increaſed, by the impoſition of heavy duties upon the article in the different ſtages of manufacture; hence the fourth of a gallon of *extra* quantity may become as important an object to the trader, under exiſting circumſtances, as a whole gallon would have been, had theſe circumſtances not exiſted.

In the year 1787, a fair and correct experiment was made betwixt a quantity of Norfolk barley and the like quantity of barley produced in one of the moſt fertile and beſt cultivated Scotiſh counties. The barleys were both malted by the ſame perſon, and that of Scotiſh growth weighed about 3 lib. *per* boll more than the Norfolk, yet the latter yielded two gallons of more ſpirits, which, at preſent value, is equal to all the malt duties put together. The like difference would have happened, had theſe barleys been brewed; nay, more, the quality and flavour of the ale would have differed as much. In brewing and diſtilling, it is the quantity of ſaccharine matter contained in the grain that furniſhes a criterion for aſcertaining its comparative value; but theſe things are now ſo well underſtood, that it aſſuredly would be ſuperfluous to enlarge on them.

We ſhall now proceed to the ſecond point mentioned, viz. the artificial difference betwixt Scotiſh and Engliſh barleys; and here we particularly requeſt the attention of our readers.

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We muſt premiſe, that, ſince 1725, the period when the malt duty of Scotland was reduced below the Engliſh tax, barley was, at different times, imported from England into Scotland, in conſiderable quantities, particularly from 1782 to 1789, even when the duties on diſtillation were trifling, in compariſon with thoſe now exacted. If the quality of the grain imported was ſo ſuperior, as to defray the expences of importation, when the government duties were low, an additional temptation to go to the ſame market for ſupplies muſt be furniſhed, by increaſing the duties in any ſhape. Whether the duty is upon the malt, upon the gallon of ſtill uſed, upon the gallon of waſh, or upon the gallon of ſpirits, that temptation is increaſed, though in different degrees. Every halfpenny of additional duty paid in either way, contributes to render good grain of greater value. The trouble and expence of manufacturing is exactly the ſame; the duties are alſo alike, whether the grain is good or bad; but the produce derived, or the quantity and quality of the perfect article, is widely different.

In this view of the buſineſs, it is evident that inferior grain, manufactured into malt, is unable to yield the ſame revenue to Government as that of ſuperior quality, becauſe it does not yield ſo much ale or ſpirit, out of which the duties muſt be paid. If the ſame revenue is collected, one of two things muſt neceſſarily follow; either the manufacturer muſt work with loſs when he uſes ſuch grain, or he muſt make purchaſes below the natural value of the article; in which caſe, the whole loſs muſt fall upon the cultivator. Since the act of laſt Seſſion, this artificial depreſſion has ſhewn itſelf in a clear manner; for, in many counties, barley cannot be marketed, and, in every diſtrict, ſells nearly in direct proportion to the value of the article when manufactured into ale or ſpirits. We do not mean to ſay, in proportion to its natural value; for this is the exact level it would find, were no duties impoſed; *but in proportion to the balance which remains in the manufacturer's hands, after the expence of workmanſhip and the demands of the revenue are ſatisfied.* The manufacturer is unable to afford a higher price than the amount of this balance; conſequently, every increaſe of duty increaſes the artificial inferiority of Scotiſh barley, and operates as a bounty upon the importation of finer qualities from the eaſtern Engliſh counties.

In the Lowland diſtillery of Scotland, according to the ſyſtem of working adopted, that is to ſay, when only one third of malt, or thereby, is uſed, the whole duties levied upon a gallon of proof ſpirits amounts to three ſhillings and three pence; and, taking this as a *datum*, we may be enabled to ſhow how far the natural inferiority of Scotiſh barley is artificially increaſed

increaſed by a ſyſtem of equal duties; conſequently, that a malt tax, nominally one half, may, in reality, be as heavy upon the growers of barley in Scotland, as the whole Engliſh duty is felt in that country. The matter ſeems plain enough; and we only wiſh to make ourſelves underſtood by thoſe who have not devoted their attention to ſuch inquiries.

We have already ſtated, that the average difference of produce from the barleys of England and Scotland, amounts to two gallons and three fourths, (in the manufacture of ale the difference is equally great); and, if we eſtimate the value of the extra gallons at thirteen ſhillings and nine pence, or five ſhillings each, and ſubſtract the ſtill, waſh, and ſpirit duties thereupon, which may amount to ſeven ſhillings and nine pence, then it will appear, that the barley of the firſt mentioned country is worth ſix ſhillings per boll more than the average qualities of the latter. As the duties are increaſed or diminiſhed, the difference in the value of the raw article (barley) muſt likewiſe increaſe, or diminiſh, though not in an arithmetical, but in a geometrical proportion. This is occaſioned by the value of the perfect articles (ale and ſpirits) being out of all bounds above the worth of the raw article from whence they are manufactured.

The value of ſpirits which may be extracted from a boll of average Scotch barley, when the price is five ſhillings *per* gallon, amounts to two pounds fifteen ſhillings; but the value of what may be drawn from a boll of Norfolk barley is three pounds eight ſhillings and ninepence, making a difference of thirteen ſhillings and ninepence on each boll after being manufactured. Now, upon the ſuppoſition that the former is worth fourteen, and the latter twenty ſhillings, the *natural* difference of ſix ſhillings is *artificially* increaſed to thirteen ſhillings and ninepence in the courſe of the manufacture. This is entirely occaſioned by the reſpective qualities of the raw materials being eſſentially different, and renders the one unable to bear the ſame degree of taxation as the other. It deſerves alſo notice, that this increaſed value of produce is obtained without any additional trouble to the manufacturer, independent of the ſuperior flavour and richneſs of the ſpirits produced, which is an important conſideration; as ſuch, in conſequence thereof, will always command a higher price at market. Under all theſe circumſtances, can it excite ſurpriſe, that manufacturers have had recourſe to England for grain, ſeeing that their intereſts has thereby been ſo materially promoted. In fact, the ſimple queſtion is, whether an article that yields two pounds fifteen ſhillings, is capable of paying the ſame *quantum* of tax, as another that yields three pounds eight ſhillings and ninepence? We think it is not; and that the whole loſs conſequently

quently muſt fall upon the grower of the article, and not upon the manufacturer or conſumer.

From theſe things, we truſt it will appear that barley of the growth of Scotland is unable to pay the ſame duty as may be exacted from Engliſh barley; and that the natural difference in quality is artificially increaſed, in direct proportion to the rate of duties impoſed. The juſtice of our argument is demonſtrated by the preſent ſtate of the markets; and, unleſs an alteration of the malt duty is procured, ſucceeding years will more and more evince the rectitude thereof. In a word, we are convinced, that, when Engliſh barley is ſold in Scotland at twenty ſhillings per boll, the greateſt part of Scotiſh barley will not ſell for more than twelve ſhillings. In ſome of the ſouthern counties, where qualities approach nearer to perfection, prices may run at a medium betwixt theſe two; but that the average of the whole kingdom will not exceed fourteen ſhillings, is a point which few will diſpute, who ſeriouſly inveſtigate a buſineſs of greater importance to Scotland than any that has occurred ſince the Union of the two kingdoms. An *equal* malt duty upon the barleys of both countries, is in fact a moſt *unequal* burden. It is exactly the ſame thing, in principle, as if the land-tax was aſſeſſed by the acre, inſtead of a regulated valuation; and muſt operate in every diſtrict preciſely according to the goodneſs of grain which is produced. In ſome, the evil will work its own cure; for the culture of barley will there be laid aſide. In others, it will only be partially felt; but, in all, it muſt occaſion a conſiderable change in the rural ſyſtem now practiſed, unleſs the act of laſt Seſſion is immediately repealed.

We have hitherto conſidered the equal value of the malt duty, ſo far only as it regarded the agricultural intereſts of the country; but we ſhall now ſhow its effects upon the revenue; which, in all probability, will rather be leſſened, than augmented, by the additional impoſition. On this head we ſhall be ſhort, as the ſubject lies rather out of our ſphere. If we, however, can make out, that a meaſure ſo injurious to the agricultural intereſt of the country, will not promote the very object for which it was enacted, it will be allowed, that the motives for urging a repeal, or modification of the meaſure, are conſiderably reinforced.

In Scotland three fourths of the barley raiſed is of a quality which cannot afford to pay a malt-tax; and even the very beſt is all the duty deficient, when compared with the produce gained from Engliſh grain. This, for many years back, has influenced the diſtillers to uſe inferior qualities in an unmalted ſtate, mixing it in certain proportions with the beſt grain, which they

ſelected for malting only. The proportion formerly uſed was three fourths of malt, and one fourth of barley: this was afterwards altered to an equal quantity of each; and ſince the additional duty was fully felt, a ſtill greater reduction of malt is made; each maſh containing no more than one third of that article. This reduction made in the uſe of malt, will prevent an increaſe of duty, more eſpecially as we learn that the brewers are adopting the like ſyſtem. The firſt year's produce is no rule for the permanent amount of the tax; for the ſtock in hand when the act paſſed, (and it was conſiderable), being ſubjected to the new duty, neceſſarily augmented it in a way which cannot be repeated.

As raw grain diſtilled neither affords ſuch a pleaſant nor wholeſome ſpirit as that produced from malt, we ſhould think that every wiſe government would be too careful of the health of its ſubjects, to throw temptations in their way for ruining their beſt intereſt. The depretiation of quality likewiſe furniſhes encouragement to ſmuggling; becauſe home-made ſpirits, when raw grain is uſed, cannot ſtand a competition with Dutch gin. By extending duties too far, the buſineſs may be thrown altogether into the hands of the Dutch diſtillers, and the old corn trade with that country revived. In former times, barley in great quantities was exported to Holland, and afterwards returned in a liquid ſtate, though it is certainly more for the intereſt of Britain that the profit of manufacturing the article ſhould centre at home, as be conferred upon a people to whom we cannot be conſidered as under the ſlighteſt obligation.

In order to ſhow the importance of the diſtillery trade to Scotland, we ſtate the following particulars, upon the authority of a gentleman well acquainted with every department of the buſineſs.

The number of gallons entered in the Lowlands of Scotland, ſince the 10th November 1802, is 1400. Theſe conſume 321 bolls of malt, and 642 bolls of barley *per* day, or 1926 bolls malt, and 3852 bolls barley *per* week, amounting to above 300,000 bolls *per annum*. The gallons entered in the Highlands are ſuppoſed to be more numerous, though, from the different mode of working adopted, a ſmaller quantity of grain will be manufactured. At all events, the barley uſed in the diſtillery of Scotland, may be eſtimated at 500,000 bolls; and if encouragement is furniſhed by heavy duties, to import only one third part of that quantity, the loſs to the agricultural intereſt of the country will be ſeriouſly felt. The ſubject calls for the earlieſt attention of the landholders in every quarter; and, that it has not hitherto been taken up in a prompt and deciſive ſtyle, muſt be attributed to the imperfect

imperfect view taken of the bearings and conſequences of the act of laſt Seſſion.

We intended to have offered ſome remarks upon the arguments uſed at the county meetings, by certain gentlemen who oppoſed an application to Parliament for redreſs, but want of room prevents us from doing more than merely noticing a few of them.

In one county where the farmers came forward, in a dutiful manner, with a petition for aſſiſtance from the gentlemen aſſembled, we learn that their application was ſucceſsfully reſiſted by an honourable gentleman, upon the principle that a half malt-tax was orginally a favour granted to Scotland for the encouragement of agriculture, and that the period was now arrived when it might be ſafely withdrawn. Probably this gentleman only repeated ſome of the arguments uſed at a previous meeting, when *another* favour was alſo withdrawn; for we have a higher opinion of his good ſenſe and abilities, than to ſuppoſe he really conſidered a reduced malt-tax as a boon, but rather as an act of juſtice to his native country. If our opinion is erroneous, we muſt refer that gentleman to the ſpeeches of an eminent perſon, to whom he is nearly related, made in the Houſe of Commons, during Lord North's adminiſtration, wherein the iniquity of ſubjecting the barleys in Scotland to the tax levied in England, is demonſtrated in much ſtronger language than is in our power to uſe.

But in another county, the act of laſt Seſſion was ſupported on different grounds, by a gentleman who has long figured in every matter that related to the diſtillery of his country; who once attempted to get malt taxed according to its weight, without reflecting that weight is no criterion for aſcertaining ſaccharine ſubſtance; and who, ſeveral years ago, had the addreſs to convince the prime miniſter, that a reduced tax would bring a greater ſum into the public coffers than one by which ſix times more money was levied. This gentleman took up the queſtion upon public-ſpirited principles; and, according to him, as members of a great and united empire, we ought every one of us to join hand in hand, and bear an equal ſhare of the national burdens. This to be ſure was very ſound doctrine in the abſtract, but aſſuredly did not ſupport the act of laſt Seſſion; for the object of the motion then before the meeting was merely to procure the very equalization he contended for, and to preſerve Scotland from being overloaded. We underſtand, alſo, that arguments from expediency were much uſed on this occaſion, particularly that any exemption in favour of Scotland would ſet the northern counties of England in a flame. It might have been replied, 'Leave theſe counties to take care of themſelves. They have paid a full malt-tax ever ſince the duty was originally impoſed; and property has been purchaſed under that burden. Aſſuredly a table of taxes cannot be formed upon geographical prin-

ciples; but as Scotland has enjoyed an exemption ſince 1725, no good reaſon has been ſhewn why it ſhould now be withdrawn; and without doing that, you don't make out your caſe. If the tax was now to be laid on for the firſt time, your arguments might be relevant; but under the circumſtances of the buſineſs they do not apply, and might be uſed with equal propriety in ſupport of an act impoſing an equal land-tax in both countries. You may tell me, that ſtatute-law (in other words, the articles of the Union,) regulates the latter; but has not the other been regulated by common law, or, which is the ſame thing, by uſe and wont, for ſeventy-eight years? Now, it may be remembered that you once boldly affirmed, in that very chair, that common law was above ſtatute law; conſequently, if you was then right, a ſtronger caſe may be made out for a reduced malt-duty than what can be produced in favour of the rule by which the land-tax is collected.'

Before we leave this ſubject, we ſhall juſt ſtate, that accounts from all parts of Scotland confirm the opinion we have given upon the act of laſt Seſſion. In ſome counties the greateſt part of laſt barley crop ſtill remains on hand; and in others, where ſales have been partially made, the prices given are much below the rates at which it can be cultivated. Under all the ſtoppage and declenſion of the home trade, importations from England have gone briſkly forward; and ſo long as barley can be got in that quarter, we venture to predict, that the principal dealers will from thence receive their ſupplies. It is their intereſt to do ſo till Scotch barley finds its full artificial level; and in another ſeaſon, if the malt-duty is not altered, this will inevitably happen.

All our letters of intelligence concur in repreſenting the preſent ſeaſon as the moſt favourable for ſeed work that could be wiſhed; and though the weather was variable and uncertain till the middle of March, when the work commenced, yet an hour has hardly ſince been loſt. In the upland diſtricts labour was finiſhed much earlier than cuſtomary, which it is to be hoped will be followed by the moſt beneficial effects. The young wheats, at the date of theſe communications, were conſidered as in a promiſing ſtate, and clovers and other graſſes in a thriving way; but we dread that the perilous weather ſince experienced (the moſt diſmal ever felt at this ſeaſon) may prove vaſtly injurious to their future progreſs.

The grain market has not varied much in the courſe of this quarter, though ſales are far from being briſk, eſpecially for malting barleys, which, as already ſaid, ſtill remain extenſively in hand. Wheat and oats keep tolerably ſteady, and the demand ſeems equal to what is preſented. Beans and peas, though not conſidered as yielding well, have lately experienced a depreſſion, which is the more ſurpriſing, eſpecially when their increaſed value is attended to, now that they are ſufficiently dried.

Fat

Fat cattle and ſheep maintain their former prices; and hitherto little tendency to fall hath been diſcovered. Great ewes, or ewes with lamb, have brought about 10l. *per cent.* more than laſt year. Indeed the advance upon live ſtock is, in every reſpect, only favourable to the breeder; for the feeders have rarely reaped more than ordinary profits.

April 23. N.

Extracts from Private Correspondence.

SCOTLAND.

Letter from a Gentleman in Berwickſhire, March 29th.

'So fine a ſeed time as we have had in this eaſtern corner, has, I believe, been ſeldom remembered. Not an hour but the harrows could go with eaſe and effect, except two froſty mornings; and even then, all was well at 11 o'clock. Every body hereabout ſeems to have finiſhed beans and oats; and all are buſily employed preparing for haſting peas and barley, and croſſing their potato and turnip land.

'It has often been conſidered as advantageous to hire horſes for plough work; but, from ſome things which have lately come under my obſervation, I am ſatisfied that a very great loſs would be ſuſtained, were ſuch a cuſtom generally adopted. The firſt requiſite for cleaning land foul with root-weeds, is to get the plough to the bottom of the vegetable mould, ſo as to reverſe every root; but this cannot be got when the work is executed by hired horſes. Such are uſually unable to turn the ſoil to a ſufficient depth, or their owner has a ſtronger deſire to get over the ground for his own intereſt, than to attend to the orders of his employer. The price paid per acre, when ploughing is executed by contract, has led aſtray many writers on rural œconomy; for if the work is ſufficiently performed, the charge is perhaps nearly double the ſum uſually eſtimated; and the cauſe is obvious.

'Could John Bull do a few things, 1. Commute tithes; 2. Grant leaſes on improvement; 3. Regulate the poor on rational principles; 4. Commute ſtatute labour; 5. Divide commons;—John would treble his land rents in twenty-five years, increaſe his population to a vaſt extent, and, of conſequence, immenſely extend his manufactures. All theſe things are, in my humble opinion, infinitely better ordered in Scotland than in England.

'Graſs parks, ſo far as they are hitherto let in Berwickſhire, are, generally ſpeaking, lower than laſt year, probably owing to the ſcarcity and dearneſs of ſtock, and the ſmaller production of caſh from the barnyards, leſſening both the powers and ſpeculative ſpirits of our farmers.'

Selkirkſhire

Selkirkſhire Quarterly Report.

OWING to the cold barren weather, and the deſtructive ravages of the grub-worm experienced laſt year, hill paſtures produced a leſs quantity of graſs than an average; conſequently ſheep, at the end of autumn, were generally rather inferior in condition to what they have been in former ſeaſons. The winter months, however, were ſo mild and favourable to vegetation, that ſtock of all kinds improved conſiderably. From January 9th to February 23d, (with the exception of a few partial thaws), a continued froſt prevailed, yet fortunately attended with no heavy falls of ſnow; ſo that the low grounds were either black, or ſlightly covered. To the 20th March, the weather was very variable; and, ſince that time to this date, has been ſo genial, that vegetation has advanced with a rapidity ſeldom witneſſed in this hilly diſtrict.

Draught or great ewes, particularly thoſe of the black-faced or foreſt breed, maintain high prices; and the advance ſince laſt year is from one to two ſhillings per head. In ſeveral places, the diſorder called *the ſickneſs* has ravaged the flocks, and occaſioned much loſs. In ſome inſtances, not fewer than one fourth of the original number have fallen a prey to this malignant diſeaſe; but, generally ſpeaking, the loſs has been moderate.

In many places, the oat-ſeed was finiſhed in the beginning of this month, and on ſome farms the whole of it was fairly brairded at that time. Indeed, circumſtances of every kind have been ſo favourable, as to furniſh a well-grounded hope, that a plentiful and luxuriant crop of corn and graſs for the food of man and beaſt will be the neceſſary conſequence.——*April* 12.

Letter from a Gentleman in Aberdeenſhire, April 14.

'The oat-ſeed in this county is finiſhed; and in ſome places it was concluded ten days ago. The ſeaſon has been hitherto very favourable; but we begin to be afraid that the drought will hurt the ſpringing of the corn on dry ſoils. At preſent, the weather anſwers well for giving a ſecond ploughing to the fields deſtined for turnip, and for harrowing and clearing the ground of various kinds of weeds. Some people are beginning to ſow bear, or big, which is our variety of barley; and a greater quantity will be ſown in this month, than has uſually been ſown in April. Unfortunately, we have very little demand for barley at any price; and many are giving it to their horſes, oats being comparatively the moſt valuable crop, owing to the very high tax on malt. You juſtly complain that Scotiſh barley is inferior to Engliſh barley; but bear or big is ſtill more inferior; and the agriculture of Aberdeenſhire muſt be deeply injured, if the late impolitic and exceſſively high tax on Scotiſh malt is continued. Oat-meal generally ſells at 15s. per boll wholeſale, and is retailed in the market at 1s. per peck. Horſes are very dear, and the demand for them is conſiderable. Cattle alſo keep high; but, excepting for milch cows, there is little demand. Ryegraſs ſeed is very dear, and can with difficulty be got at any price.

'A

'A very great quantity of grain, eſpecially bear, is ſtanding in the ſtack-yards; and from the great riſe in the wages of farm-ſervants and labourers, the farmers, even in the low diſtrict of the county, find this is rather a loſing year. In the higher parts, they ſuffered deeply from the froſts in September. But it is to be hoped, that this warm weather will be of eſſential ſervice to the weak ſeed, which many of them were obliged to ſow, not having any better. A gentle dew, inſtead of the froſts which we have had every night, and a few ſoft ſhowers, will be neceſſary for promoting vegetation in theſe higher parts, and on the thin ſoils of the lower diſtrict of the county.'

Moravſhire Quarterly Report.

Since the middle of laſt month, the weather has been uniformly good, and oats were put into the ground under the moſt favourable circumſtances. The wheat looks extremely well on all ſoils, except clays, where it ſcarcely promiſes to be a medium crop. When this much is reported, little elſe can be ſaid favourable for the farmer's intereſt.

Grain markets were never duller. Our wheat was bought up, and lies moſtly on the merchant's hand, at 25s. per boll; and oats are purchaſed ſparingly at 12s. 9d. per 4 firlots: but for barley no price can be quoted. It is abſolutely unſaleable, and in all probability will remain a drug through the ſeaſon. If crop 1803 is equally productive over the iſland as the laſt, and no alteration of the preſent duty on Scotiſh malt is obtained, it need not excite ſurpriſe to ſee the produce of the north ſold in Mark-Lane to the London poulterer at a price ruinous to the Scotiſh land-owner and farmer.

Few people have got their winter ſtock of cattle diſpoſed of; and when they are ſold, a ſmall profit will only be got for keeping.

Beef ſells in Elgin at 7d. per lib. of 17½ oz.; but the demand is very limited. Hay at 4d. to 7d. per 20 lib. Amſterdam.——16. *April.*

Letter from a Farmer in Roxburghſhire, April 16.

'The cold froſts of February and firſt week of March were ſucceeded by very favourable weather for putting the ſpring wheat, beans, peas and oats into the ground; and already they preſent a ſtrong ſhoot and healthy appearance. Barley ſeed is now commenced; but where the ground is inclined to clay, or turnips were eaten, we will be under the neceſſity of giving up, as the ſurface is become ſo hard, that it cannot be reduced in a ſufficient manner. If rain does not ſoon arrive, that kind of land muſt be left unſown; and, till a change comes, we are preparing the potato and turnip land, which works admirably.

'Rye-graſs ſeed is remarkably high-priced, particularly what is warranted to be *perennial*. In this county, we have lately ſuffered much from *annual* ſeed, which as yet can hardly be diſtinguiſhed by appearances; conſequently, are obliged to alter our ſyſtem, and to plough up graſs land ſooner than formerly. The lambing ſeaſon has proved good, and a full quantity of lambs may be expected in our markets. Fat cattle

and

and ſheep are holding good prices, though rather lower than a few weeks ago; which proceeds from the winter food being exhauſted, not from the quantity of fat ſtock in hand. Sales for lean beaſts have not yet commenced; but milch cows are ſelling extravagantly high, and young calves bring a higher price than year olds did a few years ago.

'The corn markets are very dull, and the ſtack-yards remain better filled than uſual. As for the malt tax, I do not think that many landlords or tenants have ſeriouſly conſidered the ſubject. In one point, I am clear, that as Engliſh barley is ſuperior to Scotch, the latter is unable to ſtand under the ſame duty. However proud we may be, on account of the perfection of our rural economy, ſtill an Engliſh climate is wanting: this is an improvement which all our exertions cannot accompliſh, and renders our barleys inferior to thoſe of our ſouthern neighbours.'

Letter from a Gentleman near Perth, April 18.

'The wheats early ſown look vaſtly well; but the later ſowings after clover and peas, in many places, appear very indifferent; and none are ſo forward as laſt year at this time. Graſs fields, in general, preſent a promiſing aſpect, and, from the mildneſs of the weather, will ſoon afford a refreſhing bite for live ſtock. Owing to theſe circumſtances, I think it almoſt certain that cattle and ſheep will continue to command high prices, at leaſt for ſome time to come.

'The ſpring ſeed-work commenced about the middle of March, though the weather was rather moiſt, for ſome ſoils, till about the end of the month. Both peas and oats got a favourable ſeed bed; and a fine braird, eſpecially of oats, now ſhoots up. We have at this time weather to our wiſh for preparing the barley land, and ſome people have even ſown that grain. Indeed, in comparing the early and late barleys of laſt year, the difference is ſo great in quality, that a doubt might be held whether they are both the produce of the ſame ſeaſon. This difference furniſhes an inducement to ſow early; but it will be eight days, at leaſt, before a general ſowing takes place.

'In this quarter of the country, there is but little demand for grain, and none at all for barley. Many people had good hopes, for a while, that an alteration would be made in the malt duty, which would have occaſioned an increaſe of barley purchaſers; but as yet no favourable anſwer is received to the reſpectable repreſentations offered on the ſubject.'

Argyleſhire Quarterly Report.

During the winter, we had in this county leſs froſt and ſnow than uſual, the weather having been generally wet, and often ſtormy. The ground having been thus deluged with rain, was not in condition to receive the ſeed ſo early as uſual. But the loſs is amply made up by the fineſt weather ever known at this ſeaſon, which we have had for a fortnight paſt: ſo that the ſowing will probably be concluded yet at the uſual

uſual time. The ſpring of graſs, within this fortnight, is uncommonly rapid; a circumſtance highly favourable to the ſheep, as was alſo the ſeaſon of dropping their lambs: ſo that the loſs will not probably be found very conſiderable on this kind of ſtock, which is now become the great ſtaple of the Highlands. Meal continues, and is likely to continue at a reaſonable rate, though a great deal has been imported from Ireland, owing to the deficiency of the laſt crop of potatoes, which may be called our ſtaff of bread. It has been generally ſold about 16d. the peck of 10 lib. Bear, which is moſtly made into whiſky, with or without licenſe, has ſold at the rate of 16 or 17s. the Linlithgow boll, or from 25 to 26s. per quarter of eight buſhels. Potatoes are now as high as 1s. the peck. Butcher meat 6d. the Engliſh lib. The price of all ſorts of cattle promiſes to exceed even that of laſt year, though then high beyond all precedent. Land lets and ſells in proportion.—— *April* 16.

Aberdeenſhire Quarterly Report.

For a month or five weeks paſt, we have enjoyed one of the fineſt ſeaſons recollected by any man alive. Neither the plough nor the harrows, nor any other work therewith connected, have found any obſtruction, and both have been kept cloſely employed. This was more neceſſary in the inland parts of the county, where a ſtorm of ſnow, and frequent returns of froſt, had very much interrupted the work for two months preceding. The ſowing of peas and oats is generally over. Many have begun to ſow bear, and ſome people are altogether finiſhed.

Grain here, as in other places, is much reduced in price. Oat meal may be quoted from 13 to 14s. 6d. per boll. Oats in proportion, according to qualities. Bear ſcarcely finds a purchaſer at any price; of courſe, the culture of that grain is much curtailed, and muſt be ſo ſtill more if the preſent malt duty continues.

Graſs came forward very briſkly for ſome time; but the continuance of drought, with frequent froſts at night, has in ſome degree checked its progreſs. Graſs parks, which are already ſet for the ſeaſon, have nearly maintained their former value. Cattle, eſpecially lean ſtock, are much above prices formerly reported; indeed there does not appear to be more of them on hand than is neceſſary to ſtock the graſs; of courſe little alteration can be looked for. Sheep markets are not yet commenced; but they are expected to be equally high in price as thoſe for cattle.

The price of labour is ſtill advancing very rapidly. Thus, when years of ſcarcity advance the price of corn to an extravagant rate, the price of labour muſt be advanced in proportion, that the people may *live*. Again, if corn falls exceedingly low, the labourers can enforce their own demands almoſt to what they pleaſe, becauſe boarding is cheap, and they can afford to be idle. This falls harder on the north country farmers, as few of them employ married ſervants, which cannot

be attributed ſo much to the farmers, as to a prevailing practice, for time immemorial, of letting detached pieces of land to people on account of getting their harveſt work. In ſome caſes, no work is performed, but rent paid in lieu of it. The lower orders have hitherto lived very comfortably in that way; and they are ſo ſenſible of it, that, after a man gets a wife, he conſiders it as bondage and ſlavery to be a hired ſervant. He is a bird of paſſage, that will continue no longer than he can find another opening; and his ſervice, in the mean time, is far from being pleaſant to thoſe who employ him.—*April* 16.

Dumfrieſſhire Quarterly Report.

THERE has ſeldom been a better ſpring-ſeed ſeaſon than that which is now about being cloſed. The moderate but frequent froſts in February, put the land in the moſt kindly ſtate. About the beginning of old March, the dry grounds were in good order; and in ten days thereafter, the wet ſoils were in a ſuitable condition to receive the ſeed. The oats are now almoſt all above ground, and appear ſtrong and cloſe. The quantity ſown ſeems not quite ſo much as in the laſt or former year. Barley ſeed is now begun; and the ground is in excellent order for receiving it. The early ſown wheat appears healthy and forward; but that ſown after Martinmas ſeems feeble and backward.

The general meeting of the landholders of this county was unanimous in an application to Parliament for moderating the malt tax. No matter that has been under their conſideration for many years, is thought to be of more intereſting conſequence. Our barley never can compete, in our own country, with that from the ſouth, if ſubject to the ſame duties. The fair equalized duties hitherto paid for malting barley, have been the cauſe of the culture of that grain being increaſed, and in a great degree extended our turnip huſbandry. In ſhort, good cultivation in this county appears to depend upon barley; and ſuch a check as the immoderate duty impoſed laſt Seſſion, ſo unproportioned to the grain of Scotland, may prove hurtful, in an extreme degree, to both landlord and farmer.

The cattle markets are longer of beginning than was expected. The demand from the ſouth has yet been little; but if there be no extraordinary check to vegetation, it is ſuppoſed there will ſoon be many buyers. The demand for young ſheep has not either been equal to expectation. A further advance in the price of ſtock of any kind ſeems not to be wiſhed for by any reaſonable perſon: but, from the failure of ſheep in Yorkſhire, and other parts in the north of England, and from the number of cattle that ſtill come to the ſhambles before they are at maturity, there is reaſon to think that prices muſt keep up, at leaſt while the increaſed number of purchaſers of meat are enabled, by high wages, to pay for it.——*April* 18.

Letter from a Farmer in the Upper Ward of Lanark, April 18.

'In this high diſtrict, we have had a moſt favourable ſeed-time; and the ſowing of oats became general about the 20th of March. Seed-work

work is now nearly finiſhed, and we are buſy giving our lands the ſecond furrow for potatoes and turnips. The early ſown oats make a flouriſhing appearance, and our young graſſes promiſe well. Cattle of all deſcriptions keep at high prices, and ſo do ſheep; black-faced ewes from 20s. to 25s. and wedder hogs from 16s. to 19s. We have only a ſmall demand for grain from Glaſgow, which in general is our beſt market.'

Wigtonſhire Quarterly Report.

THE weather ſince laſt Report, has been exceeding variable; nearly to the latter end of February froſt and rain alternately. March, and to the middle of this month, although interrupted now and then with heavy ſhowers of rain, rather a good ſeed time than otherwiſe to thoſe who have had induſtry ſufficient to '*catch the ſeaſon as it flies:*' a precept well worthy the attention of every huſbandman.

The late partial malt-tax has cauſed many farmers give up ſowing bear, ſubſtituting potato oats in its place, until ſuch time as the *wiſdom* of the Legiſlature ſee the juſtice and ſound policy of taxing malt in proportion to the ardent ſpirit it contains, and not according to the meaſure or weight.

Wheat and new graſs have a very healthy appearance; and though our vegetation was by no means early, it has had but little interruption ſince it began. The price of grain at preſent ſeems to look a little upward. Oats from 20s. to 30s. *p.* boll; choice ſeed Potato Oats 40s.; Bear from 25s. to 30s. *p.* Galloway boll; Wheat from 5s 6d. to 7s. 6d. *p.* buſhel; Potatoes 1s. *p.* buſhel. Butcher Meat much about 6d. a pound in quarters. Choice pieces of Beef 8d. *p.* lib.

The prices of lean ſtock ſtill keep high. We had a very fine ſhew of Galloway cattle, beſides a few ſtall-fed Iriſh bullocks, at the Glenluce new market on Thurſday laſt; and though the dealers rather appeared ſhy, thoſe who bought gave handſome prices. One great cauſe of the dealers rather keeping off, was, the graſs not yet being ready to receive ſtock. But ſuch indeed is the extravagant price of young cattle, that many think of laying aſide tillage, and attending chiefly to breeding and rearing cattle, and, *if poſſible*, to preſerve the equilibrium between grain and ſtock. One year, we cry for bread! The next, a ſuperabundance is poured in amongſt us from all quarters. Can no effectual means be found to enſure *at all times* ſeed to the ſower, and bread to the eater? At a period when the knowledge of good huſbandry is diffuſed throughout the remoteſt parts of the Britiſh empire, ſtill we behold a vaſt ſurface lying in its natural ſtate! Here the philanthropic mind looks forward, and, with a pleaſing ſatisfaction, views in proſpect the happy period when all thoſe waſte lands ſhall be brought into a ſtate of cultivation—feeding millions! But I am afraid I am wandering from the ſubject of a Report. Adieu.——19th April 1803.

Berwickſhire Quarterly Report.

THIS quarter has been uncommonly favourable for the different field operations. The froſts in February having gone off without rain, left

the land in a fine ſtate for harrowing. A good deal of turnip land was ſown with wheat in the beginning of March: the ſowing of beans, peas, and oats, followed in courſe, and continued without interruption till the whole was completed in the higheſt order. Barley ſeed is now pretty well advanced, and many of the turnip fallows have already got a ſecond furrow.

From the extent of turnips which remained unconſumed at the beginning of this month, a conſiderable reduction in the *letting* price took place; but they afford ſo little nouriſhment at this advanced period of the ſeaſon, when compared with ruta baga, that the latter root is evidently getting more and more into uſe, and will probably, in a few years, entirely ſuperſede the common turnip as a ſpring feed.

A finer lambing ſeaſon we have ſeldom witneſſed, and paſtures are ſo forward as to afford a good bite to the ewes and lambs. Winter wheats received a check from the bleak winds in February, but have now a healthy promiſing appearance. Young clovers are in general luxuriant; and from the kindly warmth which has hitherto prevailed, ſpring corns have made a quick braird.

In our butcher markets, mutton has recently experienced a trifling advance, the beſt being now 8d. *p.* lib. of 17½ oz.; beſt beef the ſame. Lean ſtock, both cattle and ſheep, are dearer than laſt year; but corn markets are extremely dull.——*April* 18th.

Eaſt Lothian Quarterly Report.

From the unſettled weather of February, and firſt two weeks of March, the commencement of ſeed-work was protracted more than uſually happens in this diſtrict; and very little grain was got ſown before the 15th March, when the buſineſs was entered upon with vigour. Since that time the weather has been uniformly dry, generally very mild; but for ſome days paſt a degree of cold has prevailed, which rivals that of any of the winter months. Vegetation, though it ſet in with rapidity, is now completely ſtopped; and the ground is become ſo dry, that, without rain, the progreſs of ſpring crops would be trifling, even was the ſtate of the weather in other reſpects materially amended.

The winter ſown wheats do not offer ſuch a promiſing ſhow as laſt year, at this date, but the extent of land ſown with that grain this ſpring is conſiderable; and exiſting circumſtances imperiouſly call for a farther augmentation. Wheat, in fact, is the only grain that bears a price adequate to the ſcale of modern rents, and ſtands a better chance of maintaining its value than barley; ſeeing that the value of the latter is artificially depreſſed by the heavy public burdens impoſed upon the manufacturing of it into malt, ale, and ſpirits. Oats are capable of paying more money than barley, which, after all, is a tickliſh crop upon the generality of ſoils, and is raiſed at a great deal of more expence.

Markets for grain have not fluctuated much in the courſe of the quarter, though the demand has not been briſk. Beſt wheat has generally ſold from 7s. to 7s. 6d. *per* Wincheſter buſhel. Barley from 2s. 6d. to

3s.

3s. Some for ſeed as high as 3s. 6d. Oats 2s. 3d. to 2s. 9d. Beans and peas 3s. 9d. to 4s. 3d. *per* the ſame meaſure. The Wincheſter buſhel is not uſed in Scotland; but the prices are here reduced to that ſtandard for the information of Engliſh readers.

Fat cattle and ſheep have alſo brought much the ſame prices as formerly reported, and the quantity on hand is not ſuppoſed to be conſiderable. As a full ſupply of food was generally poſſeſſed by every farmer, the markets were not glutted like thoſe of laſt ſeaſon when articles were ſold at an undervalue, that is, when compared with the rates at which ſtock were purchaſed in the preceding autumn. Great ewes of the Highland breed advanced about 1s. 6d. *p.* head; and their lambs, from the late good weather, and plentifulneſs of food, have hitherto thriven as well as could be wiſhed.

On the 19th of this month, a ſevere hurricane from the weſt did much damage in this county. Several ſtack-yards were completely uncovered; many fields of light land, newly ſown, were ſo much blown, that ſome, it is ſuppoſed, will require to be ſeeded a ſecond time; nay, even ſome fields of clay occupied by winter wheat, and which were mellowed by froſt, received conſiderable injury. The preceding week was ſo uncommonly hot as to exhauſt the ſurface of moiſture, while the ſame cauſe rendered the ropes and covering of the ſtacks unable to reſiſt the fierceneſs of the gale, and occaſioned a ſight in many places ſomething like what may be figured when a fleet of ſhips are wrecked.

At a meeting of this county, to conſider the malt-tax of laſt Seſſion, ſome reſolutions were propoſed, and a motion was made, to inſtruct the Honourable Colonel Hope, their member, to join with other Scotiſh members, in procuring an alteration of the preſent duty. After a good deal of argument, a committee was appointed to correſpond with Colonel Hope; but, ſo far as known, the committee have not entered upon their deliberations.——*April* 22.

Mid-Lothian Quarterly Report.

The froſt which commenced in the month of January, with conſiderable ſeverity, gave a ſeaſonable check to vegetation: it became more moderate in the month of February, and went off without any of thoſe torrents of rain which frequently occur at what is termed the breaking up of the ſtorm; of courſe, graſs ground was in a ſtate for ploughing as ſoon as the abſence of froſt did permit; and every other ſpecies of field labour ſoon followed in courſe.

The ſowing of oats and beans commenced about the middle of March, and continued without ſo much as a ſhower to interrupt its progreſs until all was got finiſhed. Since that period the weather has continued dry, with an increaſed degree of heat. Laſt week it was ſo vrey warm as rather to reſemble the month of July than April. Such a remarkable ſeed time is certainly in the remembrance of very few.

But on Tueſday, the 19th current, a ſad reverſe took place. It blowed a downright *tornado*, with violent blaſts of hail at intervals. Numberleſs

Numberleſs houſes were unroofed, corn ſtacks uncovered, and ſome of them overturned. The crows neſts were upſet, and daſhed to the ground, with the young ones. The tender blades of grain and young clovers have become black, and the rye graſs plants are much blaſted.

Some farmers have finiſhed their barley ſowing; but by far the greateſt number have not yet begun it. The early ſown wheats, after ſummer fallow, look well; but the latter ones, after beans, potatoes, or clover, look very indifferent indeed, and will require a favourable ſeaſon to make them a tolerable crop.

Upon the whole, conſidering the uncommon goodneſs of the ſeaſon, vegetation is by no means ſo far advanced as might be expected; but it often happens that this circumſtance is nothing againſt the intereſt of either the farmer or gardener.

The prices of grain have continued ſteady ſince laſt Report, and are exactly the ſame to the conſumer. Any ſmall increaſe that has taken place ariſes from the ameliorated condition of the grain by the drought of ſpring. Barley continues as dull in ſale as ever, and is refuſed by the brewers and diſtillers. This muſt continue to be the caſe while they can import ſuperior barley, and manufacture it at the ſame duties with that of very inferior quality. Now that the malt laws are to be brought under review of the landholders of Scotland, it is hoped that they will give the ſubject that mature conſideration which its importance merits; and will not ſwerve from the inveſtigation, by being told, (as was anſwered, by a gentleman high in office, to the petition of the Mid-Lothian farmers), that Scotland had long enjoyed an exemption of 50 *per cent.* on the malt duties: that however wiſe this exemption was at firſt, it has now become unneceſſary: that there are ſtill a difference of about 27 or 28 *per cent.* on the duties in favour of Scotland, which is at leaſt equal to the difference between Scots and Engliſh barley. Theſe aſſertions, although true in the abſtract, and operate in favour of the conſumer, yet are irrelevant when applied to the grower of Scots barley. Of what importance is it to him, while the fineſt barley of the maritime counties in England can be brought here, at little more expence than will carry it to the London market, and at leſs expence than will tranſport it to ſome of the great commercial towns on the weſt of England; and when brought here is manufactured at the very ſame duties with the moſt inferior barley of home growth; and the ſpirits made from it cannot be carried back to England, owing to the prohibitions thereupon? This, no doubt, muſt make whiſky both more plentiful and cheap than otherwiſe it would be. But it is hoped that the policy, or rather impolicy of this meaſure, will come under the conſideration of thoſe gentlemen who now ſeem to have taken up the matter in good earneſt.

Thoſe farmers who were not deterred by the high prices from keeping their uſual number of winter ſtock, are as far advanced in thraſhing as commonly. But others, who had either leſs ſtock, or are in uſe to

diſpoſe

diſpoſe of their ſtraw at the Edinburgh market, have much more on hand than uſual; and certainly, taking the whole county, the ſtack-yards are much fuller than has been the caſe for many years back, at this period of the ſeaſon.

The Edinburgh market has been fully ſupplied for the two laſt months with fat cattle, and ſales heavy, at about a ſhilling *p.* ſtone below the prices quoted in laſt Report. Although there has been almoſt no demand this ſpring from England for cattle to the graſs, yet the prices have kept up fully equal to that of any former period.

Great ewes (that is, ewes heavy with lamb) have ſold high beyond all former example: ſome have reached 27l. which fifteen or twenty years ſince ſold at about 6l. or 7l. *p.* ſcore.

At the Houſe-of-Muir markets, there was a ſcanty ſupply at the firſt, and prices extravagant; at the other two, great numbers of ewes were brought forward, and prices dropt from 3s. to 5s. a-head. But ſome people verſant in the buſineſs allege that the fall was more nominal than real, as the goods exhibited were nearly as much inferior in value as the prices were lower.——*April* 23.

Fife Quarterly Report.

In no ſeaſon has finer weather for tillage and ſeed work been enjoyed, than the one now finiſhed. Almoſt every where in this county, even on wet lands, the oats were harrowed in dry, and in ſuch fine order, as in a great degree preſages another plentiful crop. Young wheats look well; and the preparation for barley has gone on without interruption.

Sown graſs is excellent; every where the clovers are thick; and the laſt warm weather has made them advance greatly, as well as rye graſs. Flax ſeed for ſowing has been rather ſcarce, and ſold ſo high as 2s. *per* lippie, and 7l. 7s. *per* hogſhead; and a quantity equal to the demand of this county (where much is generally ſown) could hardly be procured. Potatoes are preſerved in large quantities, and in good order; but, owing to the low price of grain there is little or no demand for them. They are advanced to 7s. *per* boll for ſeed; but general qualities cannot be ſold, and they muſt be conſumed with cattle.

The price of barley continues very low. Such as weighs 17 ſtone Dutch weight *per* boll, ſells at 14s. 6d. Inferior qualities have been ſold ſo low as 7s.; and a very large quantity remains in the ſtack-yards. This is occaſioned not only by a low price, but from there being no market; the brewer and diſtiller uniformly preferring the fineſt qualities; and in ſome caſes have declared, where the quality was poor, that they could not afford to pay duty for it, even if the farmer would give it for nothing.

Oat-meal continues about 16s. *per* boll. Labourers wages have riſen conſiderably of late; 1s. 6d. *per* day is current, and 1s. 8d. in many places for good hands. Fat cattle are ſtill high priced; but lean ſtock

bought

bought in autumn, and kept on ſtraw, will pay very poorly for winter keeping. Straw of all kinds is plentiful and much unthraſhed victual remains.——*April* 19.

Fiars of Grain in Scotland, Crop 1802.

East-Lothian.

Per Boll Linlithgow meaſure.

	Wheat.	Barley.	Oats.	Peas.
	s. d.	s. d.	s. d.	s. d.
Beſt,	32 1½	20 8¼	16 6¾	16 1½
Second,	28 8½	19 2¼	15 4½	15 6
Third,	26 11¼	17 1½	14 6¼	15 0

Mid-Lothian.

	s. d.		s. d.
Beſt Wheat - -	26 6	Beſt Oats - -	15 6
Second do. - -	23 0	Second do. - -	13 6
Beſt Barley - -	17 6	Beſt Oat Meal - -	16 8
Second do. - -	15 6	Peas and Beans -	16 0
Third do. - -	14 0		

Berwickſhire.

	s. d.		s. d.
Wheat - -	24 8	Merſe Oats - -	14 6
Merſe Barley - -	16 6	Lammermuir do. -	13 6
Lammermuir do. -	15 0	Peas - - -	20 0
Rough Bear - -	13 0	Oat Meal, 8 ſtone per boll	15 0

Roxburghſhire.

	s. d.		s. d.
Wheat - -	38 4	Barley - - -	21 0
Peas - - -	22 6	Oats - - -	18 0
Per Berwick boll of 6 Winchester buſhels.		Per Teviotdale boll of 7½ Winchester buſhels.	
		Oat Meal - -	30 0
		Per load of 280 lib. avoirdupois.	

Perthſhire.

	s. d.		s. d.
Beſt Wheat - -	25 0	Peas - - -	13 6
Second do. - -	22 0	Rye - - -	15 6
Beſt Barley - -	17 0	Oat Meal - -	15 6
Second do. - -	15 0		
Beſt Oats - -	14 6		
Second do. - -	13 0		

Mearns.

Mearns.

	s.	d.		s.	d.
White Oats, with fodder	17	0	Peas, with fodder -	21	0
Do. without fodder -	14	6	Do. without fodder -	16	0
Bear, with fodder -	15	6	Wheat - - -	21	0
Do. without fodder -	14	0	Oat Meal - -	15	1

Moraysshire.

	s.	d.		s.	d.
Wheat - - -	25	0	Oats per 5 firlots -	17	0
Peas, Beans, and Rye	17	0	Oat Meal per 9 ſtone	15	1
Barley or Bear -	21	0			

Average Price of Corn per Quarter in Great Britain for the week ending April 9th.

	England.		*Scotland.*			*England.*		*Scotland.*	
	s.	d.	s.	d.		s.	d.	s.	d.
Wheat -	56	9	- 7	41	Beans -	32	5	- 32	7
Rye -	36	8	- 28	11	Peas -	37	2	- 31	11
Barley -	25	11	- 22	1	Oat Meal	36	3	- 34	0
Oats -	19	6	- 17	6	Per ſack of 280 lib. avoirdupois.				

ENGLAND.

Letter from a Gentleman near Stafford, April 4.

'The weather has lately been very mild, and we have enjoyed a fine lambing ſeaſon. From what I can learn, very few lambs have been loſt; and they promiſe, under a continuation of theſe circumſtances, to be of excellent quality. The wheats of this county are in a very thriving ſtate; and ſeed work of all kinds is far advanced. The grain markets have been dull ſince my laſt; and wheat has ſold at 8s. 6d.; barley, 3s. 9d.; oats, 2s. 9d.; all per buſhel of 9½ gallons. At laſt market, there was a trifling advance.

'Notwithſtanding the low price of corn, land is ſtill on the advance; and the moment a field is in the market, there is ſure to be many competitors. Arable land lets from 20s. to 40s. per acre; but meadow, and good graſs land, draw from 60s. to 63s. Beef and mutton keep up in price, viz. from 7d. to 8d. per lib.; bacon, 9d.; Dorſet lambs, about three months old, have currently brought 30s. each.'

Letter from a Farmer in an extenſive Breeding Diſtrict, April 15th.

'Owing to the great deficiency in the quantity and quality of the fodder and other food during the late years of ſcarcity, great numbers of cattle died, and many were ſlaughtered *lean*, in almoſt all parts of the kingdom; which, with the increaſed conſumption of animal food, in conſequence of the ſcarcity and high price of grain, undoubtedly cauſed that defalcation in the ſupplies of live ſtock, which has of late

been ſo much felt in moſt of our cattle markets. If, however, the ſeaſons are favourable, and if the ſpirit for rearing live ſtock, which at preſent prevails in this and other diſtricts, continue, it is probable that, in a few years, the conſumers will experience conſiderable relief. Almoſt every farmer has reared, in laſt year and this, about one third more calves than cuſtomary; and the number of ſwine has alſo been much increaſed. The inclement ſeaſons, which cauſed the late alarming ſcarcity of corn, proved alſo deſtructive to the ſheep; but the loſs was, in a great degree, compenſated by the vaſt number of lambs reared during the ſucceeding propitious ones. Unluckily, however, a deſtructive rot took place among them laſt autumn, eſpecially thoſe on ſtrong and retentive ſoils, which has made conſiderable havock.'

Letter from a Farmer in Wales, April 15th.

'The weather has been particularly favourable for theſe ſeven weeks paſt; and we are getting on faſt with our barley ſeed. The land never worked better than it has done this year; and, if the weather continues favourable for another week, moſt of our ſeed work will be over, except on the clays, where they are crying out for rain. Our winter ſown wheats (as far as I have ſeen) have looked thin and weak from the beginning; and the long continued froſt in January and February (though we had no cutting winds) has proved fatal to a great deal. Some fields that were ſheltered, and in good heart, are looking well; but they are but a ſmall proportion of the country in general. Owing, I ſuppoſe, to the poor proſpect of wheat on the ground, and the very low price of barley, and a favourable ſpring, there has been more wheat ſown this ſpring than ever was before in Glamorganſhire; many having ſown wheat where barley was originally intended; which at preſent has a better appearance than the winter ſown fields. Oats and peas braird very fine. I have ſeen but few beans. The firſt ſown barley begins to look green. Corn of all kinds is dull of ſale. Good wheat will fetch 20s. our Welſh buſhel, or about 8s. Wincheſter; but what is pitched in our market is only a few ſacks, which is ſold in pecks, and half pecks, to people who buy corn for their own uſe. The millers will not give more than 18s. for 168 pounds. They buy all by weight; and the wheat this year weighs very light. There is very little demand for barley. The very beſt is not higher than 3s. the Wincheſter buſhel; and oats about 2s. Cattle and ſheep ſtill hold their price. At Cardiff fair, the ſecond Wedneſday in March, there were but few buyers; and, of courſe, the prices lower; but, ſince that time, the demand has increaſed, and they are now full as dear as laſt year. Owing to the early ſpring, and the fine appearance of graſs, cows and calves, and ewes and lambs, are particularly dear. Pigs are not ſo high-priced as they have been; but ſtore pigs are ſtill very high. Butcher meat dear. Beef, mutton, and veal, 8d. and 9d. per pound; Pork at 7d.; Butter, 1s. 3d.; Cheeſe, from 5d. to 9d., according to quality. The price of labour is advancing with us every week; 2s. per day ſeems now to be the common hire; and men are not to be got even for that. The thraſhing of our corn is

now

now a ſerious affair; and, if I continue to plough, muſt try to get a thraſhing machine. My farm being free of tithe, induces me to plough more than I otherwiſe would do.'

Yorkſhire Quarterly Report.

THE ſpring ſeed has in few ſeaſons been more favourably committed to the ground. The weather was for ſeveral weeks ſo dry and fine, that it muſt generally have been the farmer's fault if any neceſſary buſineſs of this kind has been neglected. We had a very ſeaſonable ſupply of rain laſt week, which not only promoted vegetation materially, but alſo much improved the condition of ſome lands, which had been rendered too dry and hard for ſowing. The growth of every thing is very promiſing; and though ſlight froſts occur, there is every indication of an early and abundant ſupply of graſs. The young wheats are in general luxuriant and healthy.

The turnips have been preſerved through the winter, in a ſtate unuſually ſound and nutritive. A conſiderable quantity remains to be eaten. Hay is more plentiful than was expected; and is about 4l. 10s. per ton. The ewes are prolific; and the lambs, in ſo fine a ſeaſon, have received no check in their thriving.

The clovers, tares, and other ſeeds, are very forward and productive; and the ſpring and ſummer fallows are proceeding at an eaſy expence of time and labour.

The beſt wheat is about 7s. 6d.; Barley, 4s.; Oats, 2s. 6d.; Beans, 4s.; Potatoes, 2s., per buſhel.

Cattle and ſheep, both fat and lean, are at high prices, though apparently declining at preſent. The breeding of calves is more attended to now than formerly. Beef, mutton, veal, and pork, are about 8d. per lib.; butter, 15d.——*April 15th.*

Norfolk Quarterly Report.

THE young wheats appear to be in a healthy and thriving ſtate; and the ſpring ſeeds have been put into the ground under the moſt favourable circumſtances. The weather is at preſent ſo warm, that every article ſprings with the greateſt rapidity; and the proſpect is as favourable as could be wiſhed for a ſecond good crop. A good ſtock of all ſorts of grain in hand; but, in conſequence of the undecided ſtate of the nation reſpecting Peace or War, every article is dull in ſale, and the demand ſmall. The ſhipping prices at Lynn are—Wheat, 53s.; Rye, 37s.; Barley, 22s.; Oats, 17s.; White Peas, 38s.; Grey, 33s.; Beans, 29s.; all per quarter of 8 Wincheſter buſhels, and free on board.

Eſſex Quarterly Report.

THE peculiar fineneſs of the ſpring has permitted the ſeed to be put into the ground in the moſt favourable manner. As ſoon as the froſt left us, which was about the middle of February, bean-ſowing commenced; and in the beginning of March the ſowing of peas, oats, and barley became general. We had one or two ſnowy days, which retard-

ed our progreſs; but with that exception the weather has been truly delightful.

The froſt was very ſevere in December and January. One morning I obſerved the thermometer to be only 3 degrees above the cypher, in a north aſpect, where it was rather ſheltered. We had during this ſeaſon little or no ſnow upon the ground, ſo that the young wheats were injured; and vegetation has been ſo much impeded by the grub-worm, that there is not above two thirds of good plants. Some farmers have ploughed their wheats up. This, however, is the caſe but with a few individuals; and I yet hope they will branch and get together, as they are certainly improved after having been hoed. Some think that had we rolled them ſooner, or immediately after the froſt, we ſhould have been benefited by it, as the ground would have been rendered more ſolid, and the roots leſs expoſed to a ſecond attack. Winter tares were almoſt cut off; ſo much ſo, that I fear many will not recover, eſpecially the later ſown. Turnips were alſo much injured; but every thing being ſo far forward we ſhall not feel the loſs of them. Clover, trefoil, and the young graſſes, look particularly well; and there is every appearance of having abundance of food. The hop plants have been dreſſed, and now begin to ſhoot; ſo that poling has generally commenced in the plantations.

The ſpring corn had, throughout the diſtrict, a promiſing appearance, eſpecially barley, till within theſe few days, which is rather declining for want of rain, of which we have been now deſtitute for nearly a month; the weather continuing exceſſively warm for the ſeaſon.

Markets in this neighbourhood are governed entirely by Marklane. They were yeſterday at Chelmsford nearly as follows: Red Wheat, 42s. 54s. to 56s.; White ditto, 45s. to 58s.; Rivets, 34s. to 50s.; White Peas, 28s. to 35s.; Boilers, 35s. to 44s.; Green Peas, 26s. to 30s.; Horſe Beans, 27s. to 31s.; Barley, 21s. to 24s.; Oats, 16s. to 21s.; Malt, 38s. to 44s. *per* Quarter.—Flour, 45s. to 47s. *per* Sack.—Red Clover, 32s. to 76s. *per* Cwt.; White, 42s. to 78s.; Trefoil, 15s. to 56s.

The price of labour is very little reduced, although the neceſſaries of life are ſo much cheaper. The poor rates, however, are ſomething *lower*. In this pariſh there is a large manufactory for baize; and owing to its influence at the cloſe of the war, the rates were as high as forty-two ſhillings and ſixpence, and nearly up to the rack-rent. This laſt year they were reduced to the ſmall ſum of *twenty-two ſhillings and ſixpence* in the pound, which to be ſure gives us a conſiderable relief.——*April* 17.

Letter from a Yorkſhire Farmer, 19th April.

'Our ſpring grain is nearly all in the ground; even the barley. We have had the fineſt ſeaſon for ſowing I ever remember. Our turnip fallows are nearly all clean; and ploughing very forward. The lambing ſeaſon, which has been very favourable, is now nearly over; but the quantity of lambs is ſaid to be leſs than the laſt year. I am no great advocate

advocate for drilling white grain, no more than you. The very high price of ſeed during the ſcarcity, induced a number of farmers to uſe the drill, in order to make leſs do; and, as their crops were good, the practice has, I think, rather extended. At ſome future period, I may perhaps acquaint you with what obſervations I make upon the different practices.

'Fat cattle and ſheep have declined in price, particularly the latter. I believe much money has been loſt by wintering them. Lean ſtock, though yet very high, are much lower than in autumn. It is ſaid there is no demand for them near London, which always lowers the Yorkſhire market.

'Wheat is nearly at the ſame price as when I wrote laſt; oats and beans rather lower. Barley is ſaid to be down, but not much. The potato oat has been much ſown in England for two or three years. The farmers, however, ſeem to be tired of it; as, except upon very rich land, it is not productive, and is ſaid to be more apt to be infected with ſmut than the other ſorts. I had, however, 20 acres ſown with them laſt year, and they were very good. I have 11 acres this year. They are as common with us as any other. We have alſo a new kind of wheat; but I do not know its proper name. It is provincially called *Hedge Wheat*, and is a very heavy, fine grain; but is alſo ſaid to be liable to ſmut. I think it would be better if you could introduce the Wincheſter meaſure into your Magazine in any calculation that is made, as moſt of the different meaſures, which I ſuppoſe are well known in Scotland, are to us unintelligible.'

State of London Markets, Monday, April 18th.

Britiſh Grain.		*Foreign Grain.*	
Wheat, Eſſex and Kent	55s. to 58s.	Baltic Red Wheat	42s. to 52s.
Fine white	60s. to 61s.	Friesland do.	40s. to 42s.
Black Wheat	46s. to 49s.	Riga do.	30s. to 36s.
Rye	33s. to 35s.	Dantzic and Zealand, white	54s. to 58s.
Barley	22s. to 24s.	Rye	30s. to 32s.
Fine do.	25s. 6d.	White Peas	28s. to 30s.
Malt	40s. to 46s. to 48s.	Grey do.	26s. to 29s.
White Peas	30s. to 32s.	Small Beans	28s. to 30s.
Boilers	40s. to 44s.	Oats, feed	15s. to 17s.
Grey Peas	28s. to 30s.	Do. brew	18s. to 21s.
Small Beans	30s. to 32s.	Do. Polands	18s. to 22s.
Old do.	34s.	All per quarter of 8 Wincheſter buſhels.	
Oats, long feed	16s. to 17s. 6d.		
Short ſmalls	18s. to 21s.		
Polands	18s. to 21s.		
Fine	22s. to 22s. 6d.		
Tares	7s. per buſhel.		

Hay, 4l. 4s. per load; Straw, 45s. per ditto, lately as high as 56s., or about 10d. per ſtone Scotch weight; Red Clover ſeed, 74s. to 92s.; Ditto,

Ditto, foreign, 40s. to 74s.; White Clover, 60s. to 80s.; fine ditto, 95s. to 110s.; Trefoil, 22s. to 50s.; Ribgrafs, 41s. to 56s.—all per cwt. Ryegrafs, 22s. to 36s.; Saintfoin, 40s. to 45s., both per quarter; Beef, 4s. to 5s. 6d.; Mutton, 5s. to 6s. 4d.; Veal, 5s. 4d. to 6s.; Pork, 5s. to 5s. 4d.; Lamb, 6s. 8d. to 8s. 4d.—all per ſtone of 8 lib.

Northumberland Quarterly Report.

In the laſt Report, it was ſtated that the froſt ſet in on the 10th January, which continued, with little interruption, until the 13th March. Theſe froſts were accompanied with very little, and in ſome places no ſnow. Of courſe, the ground was in general bare, and expoſed to all inclemencies of the winter ſtorms. Since the 13th March, the weather has been uncommonly fine, freſh, and dry; and, though rather late for ſowing beans, yet the fine tilth of the land, and the very favourable ſucceeding circumſtances, will probably tend to make them ripen as early, and be as productive, as if they had been ſown a month ſooner. In many places, the plants have gotten above ground, and are looking remarkably healthy.

The ſeed-time for oats and barley was never known finer or more favourable; though, towards the latter end of the ſeaſon, ſome lands for barley got ſomewhat hard and ſtubborn, and required a little extra labour of rolling, harrowing, and horſe-hoeing, to make them ſufficiently pulverized for the clover and graſs ſeeds.

The winter wheats have ſuffered in many places very much from the ſeverity of the froſts. On ſome lands that were naked ſummer fallow, ploughed ſix or ſeven times, and put into as high tilth as poſſible, the failure is remarkably great; while, in the ſame field, the wheat ſown after potatoes, and, in an adjoining field, after drilled beans, has received little injury. On good, ſtrong ſoils, the crops are looking well; but the appearance, in general, is not promiſing. In a journey through different parts of the county of Durham laſt week, I obſerved that the wheat crops are moſtly weak and thin.

The young clovers made ſo rapid a progreſs by the mild freſh weather in March, that they were ſufficiently grown to be ſtocked with ſheep the 1ſt of April. The clovers appear every where to have taken remarkably well laſt year, there being ſcarcely an inſtance of failure; and I do not recollect ever ſeeing either a fuller plant of clover, or the old paſtures and meadows with ſo much graſs at this ſeaſon.

The demand for lean ſtock ſtill continues, with little variation of prices; for fat, the prices vary according to quality; beef, from 7s. 6d. to 8s. per ſtone of 14 lib. ſink; nice kyloe ſtots, at 9s.; ſheep, from 7d. to 8d. per lib. ſink.

A remarkable fat cow, bred and fed by Mr Jobſon of Turvilaws, was lately killed at Wooler. Her dimenſions were as under.—Length from head to rump, 8 feet; Heighth, 4 feet 6 inches; Girt, 8 feet. Weight of the four quarters, 92 ſtone 4 lib. —*April* 20.

Liverpool

Liverpool Meteorology, 1802.

	Depth of Rain as measured by a Pluviameter.			*Evaporation of Water out of a veſſel 4 inches diameter, out of the reach of Solar rays, or influence of any culinary fires.*		REMARKS.
	Inches.	Decim.		Inches.	Decim.	
January	3	0	—	1	35	21ſt, Conjunction of Jupiter and the Moon.—A great hurricane.
			—			
February	2	75	—	0	75	
March	0	75	—	1	2	
April	2	25	—	1	65	
May	1	64	—	3	27	16th, Superior conjunction of Jupiter and Saturn, whoſe influence will extend for 19 years.—Rain 21 days.
June	2	5	—	2	88	
July	6	1	—	2	42	
Auguſt	3	5	—	2	25	
September	1	75	—	2	0	
October	4	9	—	1	65	
November	1	7	—	0	85	
December	2	7	—	1	0	
Total	33	54	—	21	27	as marked by G. I. Liverpool.
	21	27	—	—	—	
	12	27	Dec. more rain.			

Liverpool Meteorogical Obſervations, &c. in January 1803.

This month began with much rain, the hydrometer ſtanding at 14.44 decimal parts, which ſhewed the moiſture of the atmoſphere; Wind S. E.; afterwards clear pleaſant weather.—5th, Changeable.—9th, Gentle ſhowers, with high wind, ſucceeded by a hard froſt, which contined till the 17th, when a thaw commenced with ſnow. Changeable.—21ſt, Fair and cloudy, rain, froſt, and ſnow.—30th, Thick fog, cloudy, and fair; wind ſcarcely varying from about S. E.; 25th, at N. N. E.—Rain 13 days.

	Inch.	Dec.		Inch.	Dec.
Rain,	1	95	Evaporation,	1	25

February 1803.

1ſt, Little rain, and high wind, N. N. E.; very changeable, with ſnow intermitting.—13th, Lofty winds began to blow, with driving ſhowers.—18th, Fair, and much ſun.—23d, Windy weather, wth mi and rain to the end.—Rain or ſnow 20 days.

	Inch.	Dec.		Inch.	Dec.
Rain,	1	8	Evaporation,	1	4

March

March 1803.

Much rain, high wind.—3d, Fair and cold; ſtill windy; froſt.—13th, Rain, cloudy, and more fair.—24th, Hawthorn foliates; windy.—29th, Fair to the end.

By the above we may perceive, according to Dr Kirvan's obſervations, between 1677 and 1789, that when there has been no ſtorm immediately before or after the ſpring equinox, the enſuing ſummer is generally dry; at leaſt five times in ſix.

More or leſs rain or ſnow, 14 days.

	Inch.	Dec.		Inch.	Dec.
Rain,	1	25	Evaporation,	1	6

Note.—We thank Mr G. I. for the above communication; and requeſt that obſervations of the like nature may be tranſmitted to us quarterly. If the progreſs of rural operations are included, we will conſider it as an additional favour. N.

NOTICES TO CORRESPONDENTS.

We will thank the Gentleman who ſent the paper on the Inoculation of Sheep, for a ſight of the *Literary Journal* he mentions. The ſpeculation is ingenious; and, if ſupported by the authority quoted, will be ſubmitted to the conſideration of our Readers.

We are obliged to *Amicus Scotiæ* for his ſuggeſtions. Whether all the Honourable Characters, mentioned by him, can, with propriety, be ranked in the liſt of Scotch Improvers, is a doubtful point; but we will with pleaſure preſent accounts, or memoirs of ſome of them, if materials can be collected.

An Eſſay *on the method of Land-draining adopted in the Counties of Eſſex, Suffolk, and Herts*, has been received, but too late for this number. An *Outline of the Chineſe Husbandry* is under the ſame predicament.

A South Country Farmer's *Obſervations on Shell-marl as a manure*, ſhall appear in our next; together with *Remarks on the culture of Moſſes*.

We are always extremely happy to hear from our good friend S. E.; this gentleman being the firſt volunteer who joined our ſtandard, when we beat up for recruits, and therefore entitled to our particular attention. His laſt communication ſhall appear with all convenient ſpeed.

A variety of Eſſays and other papers have been received, which want of room prevents us from particularizing; but our Correſpondents may be ſatisfied that ſuitable care will be beſtowed upon their reſpective favours.

The letter from our Iriſh correſpondent, together with Inverneſs and Roſsſhire Reports, and the Glaſgow letter of intelligence, were too late of coming to hand, which we much lament, as they contain important information.

No. XV. will be publiſhed Monday 1ſt of Auguſt 1803.